ACCS

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MODERN TRANSPORT

"THE TIMES" OF THE TRANSPORT WORLD

SIGNALLING ASSISTANCE AT BARNES

See Page 2

VOL. LXXXIII No. 2136 [*Registered at the G.P.O. as a newspaper*] LONDON, APRIL 23, 1960 PRICE ONE SHILLING

CURRENT TOPICS

Advisory Group, Not Planning Board

THE constitution and functions of the "planning board" which is to report upon the organisation of the B.T.C. came up for discussion again in the House of Commons on April 13. This time it was on an amendment, moved by the Opposition, to reduce the Ministry of Transport salaries vote; the amendment was rejected by 289 votes to 226. In this further debate—that on April 6 was reviewed in our last issue—it soon was apparent that the board had become an "advisory group," and the Minister stressed that its terms of reference were flexible and wide. If the terms should inhibit the group in any way he would be happy to meet their wishes. The group would be in continuous consultation with himself — he would be seeing them every week or fortnight — and its report would not be published: there were good precedents for that, he said. The group would listen to the unions before tendering advice and the unions would again be consulted before the Government took any decision. As to the Commission, Mr. Marples explained that its chairman had been "consulted throughout"; from which it is reasonable to assume that the same process will be followed with the Commission as with the unions. The dominating factor, said Mr. Marples, was the Commission's huge loss, including interest on transport stock over five years, which would amount to £350 million, with an operating loss on the railways estimated at £45 million a year; that included the 5 per cent pay award consequent on the Guillebaud report but not the committee's final award. It was an intolerable burden, and it was clear that the Government should act, and be seen to act, promptly. He made two sweeping assertions, incidentally in line with those of the Prime Minister on March 10: that decentralisation was meaningless unless each individual undertaking was self-accounting and managed its own affairs, and that the management structure was too large. The grounds for these accusations he did not state, and they have yet to be proved; it will be interesting in due course to learn the verdict of the four wise men, if indeed it be allowed to filter through.

Research and Development Expenditure

REPLIES to a questionnaire sent by the Department of Scientific and Industrial Research in April, 1959, to more than 500 concerns known to be engaged in scientific or engineering activities indicate that British manufacturing industry spent about £300 million on research and development in 1958, compared with about £190 million in 1955. This represents 4.2 per cent of manufacturing industry's contribution to national production compared with 3.1 per cent in 1955. Some 95 per cent of the £300 million was spent in industry's own establishments and about 5 per cent on payment to outside bodies such as co-operative research associations, universities and other public and private research institutions. These estimates are contained in a D.S.I.R. survey, *Industrial Research and Development Expenditure 1958*, published recently by H.M.S.O., price 1s. 3d. net. The main expenditure on research and development for the year under review was in aircraft (£100 million), electrical engineering (£64 million) and chemicals (£43 million). Non-electrical engineering and shipbuilding jointly spent £29.4 million and the motor vehicle and components industry spent £17.1 million. These estimates of expenditure are based on the estimates of the distribution of qualified scientists and engineers engaged on research and development provided by a survey carried out in 1959 by the Ministry of Labour and National Service for the Advisory Council on Scientific Policy (Cmnd. 902). D.S.I.R. itself carried out a special inquiry designed to discover how the cost of employing a qualified worker on research and development had changed since 1955 and the results of this inquiry are described in the report; they show that this cost varies greatly from one industry to another and is related to the amount of development expenditure and the use made of supporting (not fully qualified) staff. The average cost of a qualified worker for all manufacturing industry was nearly £11,000. In the case of the aircraft industry the figure was nearly £31,000 and the average for manufacturing industry other than aircraft was just under £8,000. In 1955 the cost of a qualified worker was £5,600 and the new figures represent an increase of 43 per cent, of which 14 to 15 per cent can be attributed to rising prices and incomes. The amounts which different industries spend on research are given and they are compared with the estimates of net output in the Board of Trade 1958 Census of Production. Research and development expenditure is analysed and estimates of payments for research by outside bodies are included.

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Gradients Steepened by Subsidences

THE need for close observance of changes in gradients due to mining subsidence is emphasised by Colonel W. P. Reed, Inspecting Officer of Railways, in his report on a collision between two mineral trains at West Sleekburn, between Newcastle upon Tyne and Newbiggin, North Eastern Region, at about 7.22 p.m. on November 4, 1959 (H.M.S.O., 1s. 0d.). An up coal train without vacuum brakes, accepted under warning arrangement in the absolute block regulations up to the home signal protecting the junction, was unable to stop on the falling gradient. Slowly passing the signal it collided head-on with a down coal train which was travelling at a good speed over the junction to the branch line under clear signals. The driver and fireman of the down train were killed. The inspecting officer is satisfied that the driver of the up train approached the signal cautiously, with every intention of stopping at it, but events showed he was not driving with sufficient care for this difficult section of line. Colonel Reed says that the margin of safety for the acceptance of up mineral trains with the junction set for the branch was reasonable when the gradient was 1 in 250, but not since it had been affected by subsidence. A repetition of the accident should be prevented by recent amendment of the signalbox instructions. Although the signalman failed to carry out the full warning arrangement procedure, his action did not contribute to the accident. "The change in gradient which made the conditions at this junction hazardous," concludes the report, "may happen at other places where subsidence can take place through mining. . . . Gradients where subsidence can occur are being checked so that train operating arrangements shall not be based on misleading data, and I think that the same precautions should be taken in other regions."

Accelerating Tube Stock Programme

AS already recorded in our columns, London Transport has announced plans to speed up the replacement of rolling stock on the Central Line. Part of the order for 532 cars of aluminium alloy 1959 tube stock now being constructed by the Metropolitan-Cammell Carriage and Wagon Co., Limited, will be put into service on the Central Line beginning about next August. The first deliveries of this stock, which began last December, are going to the Piccadilly Line. Central Line trains of 1959 stock will all be of eight-car length and London Transport has placed a new order with Metropolitan-Cammell for an additional 57 non-driving motor cars of 1959 stock so that the remaining cars of the present contract can be delivered in eight-car trains for the Central Line; Piccadilly trains are of seven-car length because of platform limitations in the central area. In the meantime all remaining seven-car trains of the old-type stock on the line will be increased to eight cars by the summer. By August, when deliveries of 1959 stock to the Central Line are expected to begin, nearly half the Piccadilly Line rolling stock will be of this type or of 1938 tube stock of similar high capacity. In order to complete the renewal of the trains on both lines orders will be placed for several hundred further cars of 1959 tube stock to follow on the present deliveries. The revised scheme will enable the replacement programme to be completed at an earlier date than would have been possible under the original plan. The motor cars for three prototype trains of a new type will be delivered to London Transport by Cravens, Limited, this year for trial running, with trailer cars reconditioned at Acton Works.

An Early Railway Contractor

BORN at Derby on March 11, 1810, Charles Fox became interested at an early age in railway engineering. When the Liverpool and Manchester Railway was being constructed, he served his apprenticeship to Ericsson, then engaged in building a locomotive to compete in the Rainhill trials. Fox's mechanical talents were noticed by Robert Stephenson, who decided to employ him on the London and Birmingham Railway as a constructional engineer. Fox worked on the tunnel at Watford and afterwards carried out the extension of the line from Camden to Euston. He then entered into partnership with Braham, the contractor, and, on the latter's retirement, assumed control of the business. The firm, trading as Fox, Henderson and Company, was a pioneer in manufacturing improved railway engineering equipment such as bridges, water tanks, cranes, station roofs, wheels and track parts. From 1857 Fox practised in London as a civil and consulting engineer. A consistent advocate of economy in railway construction, he made efforts for the relief of agriculture by building light railways and was an advocate of the Railway Construction Facilities Act, 1864, which, however, proved abortive. During the 40 years of his professional career, he worked on many big projects abroad. In conjunction with G. Berkley, he built the first narrow-gauge line in India and he also worked in Queensland, Cape Town and Toronto. Sir Charles (he was knighted in 1851 for his work on the Great Exhibition building in Hyde Park) was also a notable bridge builder. Station roofs at Paddington, Waterloo and Birmingham New Street were among his achievements in another sphere.

Across Lancashire by Tram

NOW that the tram has all but disappeared from Britain it is of interest to reflect on the continuous networks that developed in the first two decades of this century and of which that in South Lancashire was the most notable. In 1936 MODERN TRANSPORT published a letter from a correspondent who claimed that his aunt rode from Liverpool to Stockport by tramcar and enjoyed it, despite open-top cars, closed ones full of the fumes of miner's shag, wooden seats and all. From Victoria Road, the northern terminus of the Waterloo and Crosby Tramway (owned by the Liverpool Overhead Railway), to the southern terminus at the junction of the Buxton and Macclesfield Roads of the Hazel Grove U.D.C. line was roundly 54 miles via Liverpool Pier Head, Prescot, St. Helens, Ashton, Atherton, Boothstown, Worsley, Monton, Manchester and Stockport, all on the 4 ft. 8½ in. gauge. It would not have been possible to drive a tram the whole way as the W. and C. line was not physically connected with the Liverpool lines. The rest was connected to give a continuous route of about 51¼ miles. Instead of going to Hazel Grove the traveller could have travelled via Ashton and Mossley to the S.H.M.D. terminus at Roaches, a distance of 53¾ miles from Seaforth Sands. Either of these journeys could have been slightly extended by using the Swinton instead of the Monton connection, but this would have involved reversing at Swinton. An additional five miles without reversing could have been put on by travelling from Atherton via Bolton and Walkden. The junction at Clifton was not put in until St. Helens Corporation discontinued the through connection.

A Long and Difficult Process

THE longest journey without unnecessary detours over which one could have driven a car without reversing was from Seaforth Sands to Bacup via Bolton and Rochdale, a distance of 58¾ miles. At Bacup one had only to walk round the corner to find the 4-ft. gauge tracks to Rawtenstall, Accrington and Blackburn and thence north to Wilpshire, west to Preston New Road and south to Whitehall, the Darwen terminus. A journey by ordinary service car from Seaforth Sands to Hazel Grove could hardly have been accomplished in less than eight hours, with another 20 minutes from Crosby. The actual point-to-point running times might have totalled an hour or more less than this, but there were many long headways and consequent delays in changing cars. One or two journeys were made by through cars between Manchester and Liverpool for ceremonial purposes. On Monday, March 30, 1903, a convoy of four South Lancashire and three Liverpool cars left Liverpool at 9.30 a.m. and reached Bolton at 2.15. They had made a detour to Leigh and spent half an hour at Atherton power station. But at our best we could not hold a candle to the Americans who regularly sold through tickets over the 267 miles from New York to Boston, offering one or two nights in hotels on the road for the participants to recover from changing cars; one of the technical papers once piloted a party over the thousand miles from New York to Chicago by electric car, despite one or two gaps; they returned, like sensible fellows, by train.

Southern Region modernisation

assisted by

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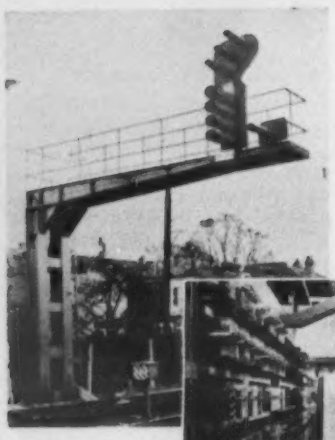
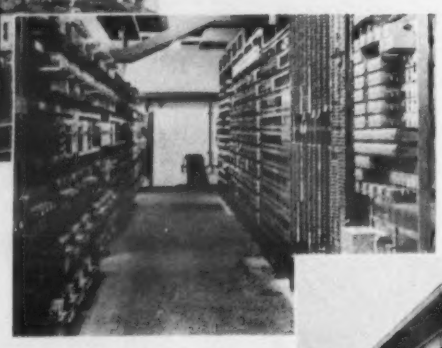


This resignalling covered the supply and installation, over the whole section, of colour light signalling, point machines, and continuous track circuiting and, in the new signal box at Barnes, an O.C.S. control panel, with illuminated diagram, controlling all the signals and point machines for the 45 routes. In addition there is the operation of the existing level crossing gates by an oil gate machine controlled from a small push-button panel.

4-aspect signal and junction indicator, and subsidiary signal



Part of relay room at Barnes

Barnes new signal box and level crossing gates

Photos by courtesy of British Railways—Southern Region

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The Editor is prepared to consider contributions offered for publication in MODERN TRANSPORT, but intending contributors should first study the length and style of articles appearing in the paper and satisfy themselves that the topic with which they propose to deal is relevant to editorial requirements. In controversial subjects relating to all aspects of transport and traffic this newspaper offers a platform for independent comment and debate.

Near and Far Future of Air Transport

RECENTLY there came within two days two aviation developments that may influence the immediate and the long-term future of British air transport. They were different in form and, indeed, unlike in the reactions they aroused. One was the announcement by the Minister of Aviation, Mr. Duncan Sandys, of the Government policy on air fares within the British Commonwealth and the other the second report of the air transport committee of the Air League of the British Empire. The former can be said to have had general welcome, while the latter has been widely supported so far as it demands early Government action to further the development of transport aircraft, but has encountered considerable criticism on the score of the lines of progress proposed. There has long been anxiety as to the future pattern of the British air transport industry and also that required for the best deployment of production resources. There had been fears that strong desire to give more scope to independent operators might lead to developments inimical to the wellbeing of the two airways corporations. In the event, the Minister, who had already influenced very strongly the coalescing of the resources of the aircraft and engine manufacturers, has also instigated by amiable suggestion an arrangement which should safeguard the interests of the corporations whilst affording reasonable security for the independents.

Co-ordinated Effort

LAST winter Mr. Sandys had put forward the idea that it might be in the interests of all concerned if the smaller undertakings grouped themselves into stronger units and this has, in fact, taken place with the merging of the Airwork and Hunting-Clan groups as British United Airways, while acquisition by Cunard of an interest in Eagle means that there is shipping backing for the major independents. Nor is this all, for discussions have been taking place aimed at the co-ordination of services of six other independents including Cambrian Airways and Jersey Airlines, in both of which British European Airways has a minority shareholding. It is understood that this collaboration would aim particularly at fostering internal services with emphasis upon cross-country routes. It would be wrong to lay too much emphasis upon the lessons of the past, but the developments of recent months do resemble in many ways the period in the thirties when Allied British Airways was formed—it became British Airways very quickly—to merge the activities of such operators as Hillman, Spartan, United and Highland. It subsequently collaborated with the railway-associated interests in reorganisation of operations under the aegis of Scottish Airways and Isle of Man Air Services. The result of the introduction of a licensing system and evolution of a pact with the British and Foreign Aviation group resulted in almost all the major internal operations other than those of North Eastern Airways being railway associated. The value of this consolidation was, however, never really proved because of war breaking out in 1939.

Scope for Aircraft Use

THERE can be little doubt that the emergence of these new low fare levels, even if they have not fallen to as low a rate per mile as was proposed by some of the independent operators, should do much to stimulate traffic if world conditions do not deteriorate. There are also the recently agreed international fare reductions with their provisions for differentials between jet and propeller aircraft and the implication is almost inescapable that these may tend to prolong the life of modern propeller aircraft at a time when airlines re-equipping with jet machines were at a loss to know what to do to avoid heavy writing down of assets. At the same time the capacity of the jet aircraft and its high initial cost make it particularly important that it should obtain high load-factors. The basic need is thus to keep fares at as low a level as possible while being careful to maintain them on a basis which still leaves scope for propeller aircraft economically to earn their keep. The impact of competition is bound to be felt increasingly upon short distance routes but there is obvious scope for expansion of the idea for off-peak flights at special rates. Two recent flights on such between London and Edinburgh showed us that much traffic was already being attracted by a fare which, outside the summer months, compares very favourably with second-class rates by rail. The Air League report, talking as it does of the distant future, does arouse thoughts as to whether supersonic aircraft might not, particularly if Mach 3 is to be the speed envisaged, create a similar situation all over again at a time when there was less room for fare reductions. That is not to say that the proposal need be ruled out on that score but merely that it is a consideration to be taken into account.

Supersonic Project

THE main agreement behind the proposals of the Air League's air transport committee is that the cost of developing new machines is so astronomical that a market far wider than mere national requirements is essential if production costs are to be offset. It follows that for a machine to establish itself so firmly it must prove the most attractive for foreign purchasers; in other words emulate the Vickers Viscount. Having regard to the time which is involved in producing an aircraft it is argued that to work on any less ambitious project would be merely to achieve output of a type which would be little or no more advanced than those produced in other countries; it might well, moreover, appear rather later than its competitors and so be at a disadvantage from the start. To that extent, strengthened by the faith in British-built engines, it is urged that there should be developed a vertical take-off air liner which would fly at about 65,000 ft. Use of v.t.o. would eliminate consequential expenditure upon runway lengthening and eliminate the need for compromise wing design. When it comes to cost, it is proposed that the Government shall be prepared to invest from £100 million to £150 million over 10 years in such an enterprise. There is some reference to the possibilities of collaboration with other countries which doubts whether United States manufacturers would be particularly enthusiastic on that score. It may well be that the British and French firms now discussing a pooling of effort in this field will reach satisfactory conclusions. If anything is to be done, however, it is patent that far too little is known as yet about flight at such altitude and clear air turbulence in its various forms.

MODERN TRANSPORT has an arrangement with Reuter's Trade Service whereby publication is made in this newspaper of all essential news from all parts of the world concerning traffic and transport by rail, road, sea and air and allied interests.

NEWS SUMMARY

ROAD traffic during the Easter holiday week end resulted in not less than 75 fatalities and 1,500 injured. The final verdict may be somewhat higher. The increase is undoubtedly due principally to the larger number of private cars in use; there are now estimated to be almost six million. A private members bill proposing new road safety measures is due to be debated on Friday next week.

The annual conference of the Scottish Road Passenger Transport Conference opened this week at Turnberry. An abstract of the paper on city bus operation by Mr. R. W. Adams (Belfast) appears on page 13.

London busmen are still pursuing their claim that an inquiry should be held into the wage structure (page 4).

On Wednesday H.R.H. the Duchess of Kent opened the new combined road-rail Kingsferry Bridge across the Swale, linking the Isle of Sheppey with the mainland of Kent. This much-needed improvement to communications in an industrial corner of the county was first mooted in 1917, the old bridge having been built in 1860 for the Sittingbourne and Sheerness Railway and carried a toll road.

The use of Dowty hydrostatic transmission in the Windermere ferry *Drake*, recently converted from steam to diesel propulsion by Leyland Motors, exploits the efficiency of this type of converter at high torque multiplication and contributes to other operating advantages (see story on page 6).

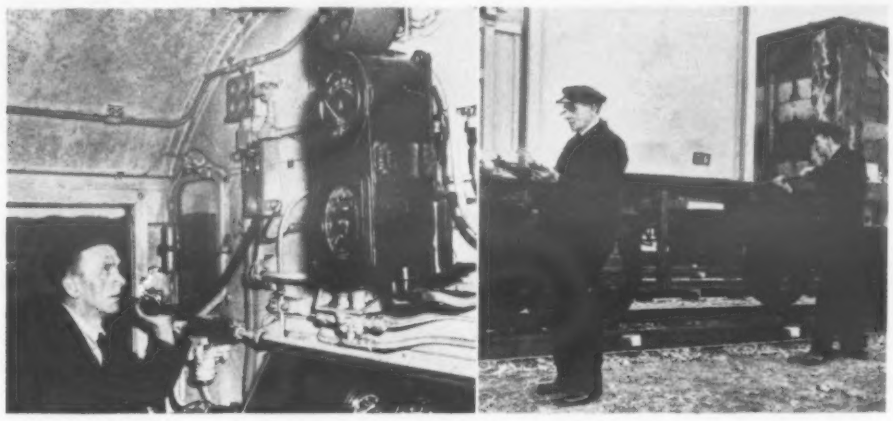
NEW W.R. MARSHALLING YARD AT MARGAM

Fully Automatic Operation

CONTRIBUTION TO MODERNISATION

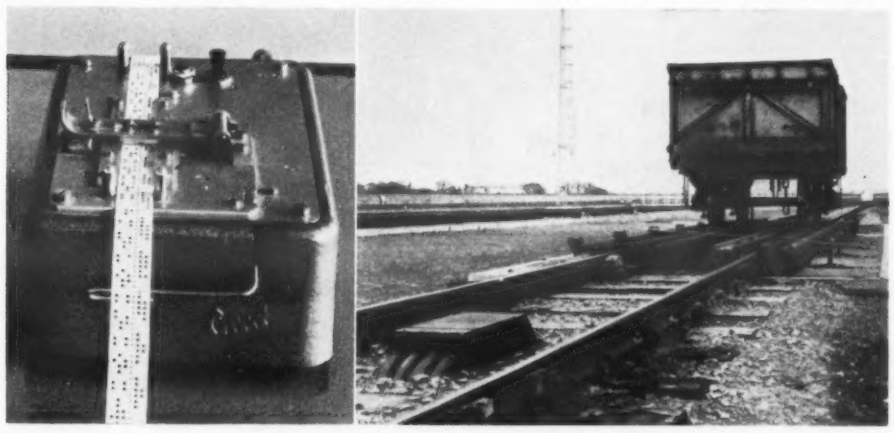
OPENED on April 11 by Mr. K. W. C. Grand, member of the British Transport Commission, as already announced in our columns, Margam marshalling yard, near Port Talbot, on the Western Region of British Railways, is a fully automatic yard unequalled in Europe and taking full advantage of the benefits of radar and electronic devices, with plus engine and van. The shortest sorting siding holds 43 wagons and the longest 101. All 12 reception sidings are available for down trains, and are accessible over a new junction in the main lines at Water Street underbridge.

Of the 12 reception sidings five are also available for up trains, and are accessible via a new up arrival line, either from the up goods lines at Margam Moors signal box, or from the Steel Company of Wales sidings by means of two new fly-over bridges at the west end of the yard. After sorting, down traffic is cleared from the west end of the yard, but facilities are available for up trains to depart from the two most northerly fans of sidings via a new up departure line leading to the new junction with the main lines at Water Street.



Humping engine cab at Margam, showing driver's radiotelephone set, and above, humping speed indicator and ammeter, repeater of lineside hump signal; right, shunter making cuts in reception siding and portable radio being used to transmit cuts to teleprinter operator in control tower

Construction was in six sections: Reception sidings; hump, control tower, and amenities blocks; sorting sidings; down through line, up arrival line and up departure line; Steel Company's access lines; and the doubling of Ogmore Valley Extension line from Margam Abbey Works East to Newlands signal boxes. Before work began the site was a waste of sand dunes known as Margam Moors. The subsoil in the area consists of sand and peat to a considerable depth and the earthwork requirements were mostly for fill. By levelling off the existing irregularities and excavating from a nearby borrow pit these were carried out most economically. In all approximately ¾ million cubic yards of sand were moved by seven diesel tractors and scrapers. During the peak period of construction as much as 2,000 tons of ballast per day were delivered to the site by specially programmed shuttle services of ballast trains.



Tape reader which puts in motion the automatic setting of points for each cut of wagons; right, wagon in retarder approaching radar unit in four-foot way

radio and punched tape techniques in addition.

Speaking on behalf of Sir Brian Robertson, chairman of the B.T.C., who was unwell that day, Mr. Grand said it was a Welsh occasion but the effects on freight business of the new yard would be felt far beyond the Welsh border. Until that day there were no more modern yards than those of the B.T.C. at Thornton and Temple Mills. Margam had been laid out in conjunction with the Steel Company of Wales, which had its great works at the west end and to which 15 sorting sidings were allocated. The Thornton yard replaced eight smaller yards, Temple Mills 14—and at a saving of £200,000 a year, too. So Margam would make its economies in the Cardiff and Swansea districts and relieve pressure at Severn Tunnel Junction, Pontypool Road and Cardiff. It would handle 4,500 or more wagons and 220 trains daily and would be keyed in to yards at Severn Tunnel Junction, Gloucester Brookthorpe and Shrewsbury Walcot.

View from above hump of the floodlit marshalling sidings at night; primary retarders in foreground and control tower at left of picture

General Layout

The marshalling yard is situated between Bridgend and Port Talbot approximately 3½ miles from the latter station, on the down side of the main South Wales lines. It occupies an area of 178 acres extending over a distance of 1¾ miles and comprises 33 miles of plain line and 240 fittings. There are 12 reception sidings with engine release line and hump engine return line, together with 50 double-ended sorting sidings, 10 single-ended holding sidings, and 7 single-ended transhipand cripple sidings with transhipplatform and cattle pens. The capacity of the reception sidings varies from 63 to 95 wagons

Civil Engineering

The River Kenfig flowed across the site and a diversion was carried out in two straight cuts, one either side of the yard, linked up under the hump area by two reinforced concrete box culverts, under the tracks. Originally the river water was impounded on the upstream side of the yard by a weir. Owing to the diversion this weir had to be replaced by one on the downstream side of the yard. To gain the required length for

(*Continued on page 7*)

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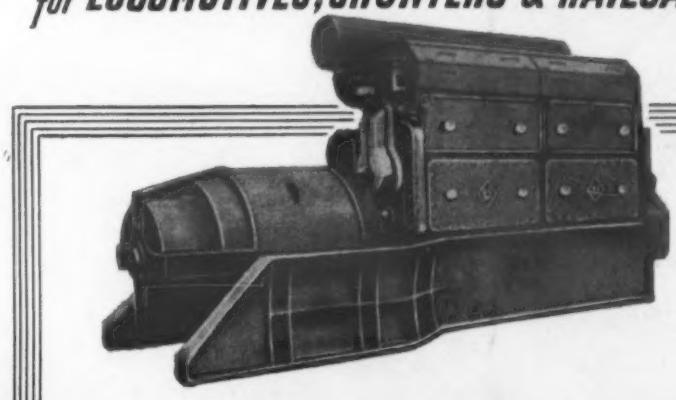

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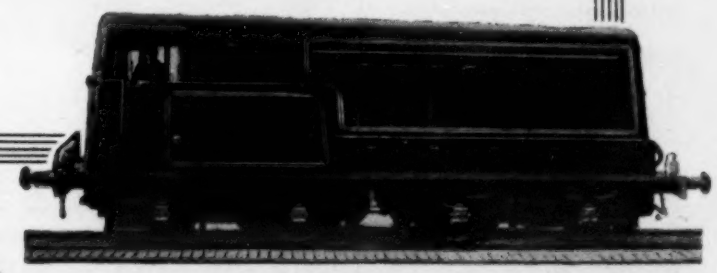

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LORRY—BUS—COACH

London Busmen Seek Wage Inquiry

PRESSURE is now being exerted by the militant Central Area London busmen for an inquiry into wages along the lines of the recent rail wage structure inquiry. A special meeting of the London bus negotiating committee was fixed for Thursday this week to discuss the demand for an inquiry. The first suggestion for one appears to have come from London Transport during the recent wage negotiations, but the need for it was considered by the management to have been dispensed with when a 10s. award was conceded. What has especially annoyed the busmen is that Underground men, under the terms of the Guillebaud settlement, could receive £3 per week more than they.

Big Fleet on Steelworks Construction

OVER 120 vehicle operators, a few operating as many as 20 vehicles but most of them only one or two, were given short-term licences in March to carry shale and road-making materials to the site of the Spencer steelworks, under construction at Llanwern, near Newport, Monmouthshire, and another 194 such lorries have been authorised this month. Some of the owners come from as far away as Inverness, London, Lancashire and Yorkshire.

Brake Fade Tests Proposed

A DRAFT set of braking regulations for motor vehicles and trailers was adopted by the E.C.E. working party on the construction of vehicles in Geneva last month. Under the regulations adopted by the working party, all vehicles must undergo an ordinary braking test with the brakes cold, and certain vehicles must, in addition, undergo a test revealing the loss of efficiency when the brakes are hot; the heaviest vehicles are also required to be tested for their behaviour on long downhill runs.

Edinburgh to Have More P.A.Y.E. Buses

MORE one-man buses are to be introduced by Edinburgh Transport Department. The present one-man operated service which has been running on an experimental basis on route 40, between Portobello and Newcraighall, with three buses is to continue. Mr. W. M. Little says that the decision to extend one-man operation on suitable routes has been made possible by the recent wage settlement in the municipal bus section. The undertaking has now taken delivery of 200 Setright ticket machines for trial at one depot. This is the low-value model, printing tickets up to 11½d. in halfpennies, and it results in considerable savings in operation.

Now Largest U.S. Trucking Company

BY acquiring a further two large trucking companies in the east and mid-west, Consolidated Freightways, of Menlo Park, California, now has coast-to-coast operating rights in the U.S.A. It is only the second operator to secure such authority; no railroad, of course, has a transcontinental line although throughout operation of traffic is perfectly feasible. The two businesses which the I.C.C. has authorised Consolidated Freightways to acquire are Motor Cargo, Incorporated, in Akron, Ohio, and Liberty Motor Freight Lines, Incorporated, in Secaucus, N.J. Paradoxically, the average length of haul by Consolidated has dropped from 750 miles to 400 miles in recent years, it is believed due partly to railroad rate reductions.

The I.C.C., in granting authority for the acquisitions, said that Consolidated Freightways would not be achieving a monopoly between any points. Because it would unduly disturb the ability of other carriers to maintain their efficiency the I.C.C. has refused Consolidated authority to acquire three other truck lines in Kentucky, Virginia and West Virginia. It notes even so that the Californian company will be the largest motor freight carrier in the U.S.A. both as to gross revenues and territory. "The preservation of the inherent advantages of the railroad industry does not require us to freeze the motor carrier industry at its present level," says the decision. With its latest acquisition, Consolidated has assets of £36 millions.

A scene at Forest Gate Garage in the days of the Great Eastern London Motor Omnibus Co., Limited; the bus is an Arrol-Johnson (see accompanying paragraph)

Budget a Double Disappointment

IN the forefront of new developments in 1959 was the introduction of inter-urban express services with limited stop facilities, says Mr. W. T. James, chairman of Northern General Transport Co., Limited, in his annual review. Four such services have been started: Newcastle—Durham, Newcastle—Sunderland, Newcastle—South Shields and Durham—Sunderland, at hourly frequencies in each direction. The October, 1958, wage award cost the company £110,000, which was shouldered without increasing fares (they went up last 2½ years ago), but the present claims pending will add no less than £550,000 per annum to group costs. Moreover, far from providing any relief to the fuel tax, the 1960 Budget actually adds to the tax burden, since profits tax is increased from 10 to 12½ per cent.

Ethylene Vapour Leaks from Tanker

POLICE cars and fire engines this week escorted a road tanker loaded from Southampton for Petrochemicals, Limited, of Carrington, near Manchester, with liquid ethylene, a chemical used in making plastics. The liquid is transported at low temperature and gives off an inflammable vapour on contact with the air. The driver reported that a valve was leaking and the tanker was re-routed to avoid built-up areas. As it made its journey northwards it was preceded by police cars, warning pedestrians to put out their cigarettes and motorists to switch off their engines, while fire engines followed ready to smother any liquid with foam. The tanker was kept moving continuously to avoid any dangerous concentration of vapour. Early in the morning of Monday, ice formation caused the leak to be sealed off and at Carrington the tanker was unloaded in the normal way. Petrochemicals said later that there had been little danger. The leak was at the top of the tank and the vapour would have risen. The police, it acknowledged, lacked expert knowledge of how to tackle the situation that arose.

An L.T.E. Garage to Close

COINCIDENT with the introduction on April 27 of stage VI of the London Transport trolleybus replacement scheme, Forest Gate Garage will be closed and full use will be made of the site area of West Ham, formerly the headquarters of the West Ham Corporation Tramways. Of the services operated from Forest Gate, the very large number of buses engaged on route 25 (Victoria—Becontree Heath and Dagenham) will be transferred to West Ham; all the 66 (Leytonstone—Hornchurch) allocation will be to Romford North Street; the weekday allocations for 86 (Limehouse—Upminster) and Saturday turns on 145 (Chingford—Dagenham) will be transferred to Upton Park. The Forest Gate garage site in Green Street was originally occupied in 1898-99 by the Great Eastern London Suburban Tramways and Omnibus Company, which became, in 1906, the Great Eastern London Motor Omnibus Co., Limited, and was acquired in 1911 by the London General Omnibus Co., Limited.

Capstaff to Build in Gateshead

IT is learned that the Newcastle haulier J. W. Capstaff, Limited, is to construct a distribution depot on Team Valley trading estate in Gateshead. Covering about 25,000 sq. ft., the premises will include offices, warehouse, storage facilities and canteen. The present headquarters are at Benton, Newcastle.

Cheshire Bulk Milk Collection Scheme

A SCHEME for the bulk collection of milk from farms in Cheshire has been agreed by the Milk Marketing Board and Reece's (Merseyside Dairies), Limited, and will start in October. Bulk tankers will collect up to 15,000 gal. of T.T. milk a day, replacing churns. This will constitute the largest bulk milk collection scheme in the country. It is the third such scheme organised by the board. About 150 farmers are within range of the scheme. So far bulk collection has made more headway in Scotland.

Meat Transport Changes

IT was announced last week by Mr. Peter J. Wise, a Bristol company director, that he had acquired a controlling interest in Transport (Bristol), Limited, from Mutual Meat Traders, Limited, which no longer has any interest in the company. Transport (Bristol), Limited was formed in 1953 at the end of meat rationing to distribute meat from docks and cold stores throughout the Midlands and West Country. Recently the firm acquired the whole of the issued share capital of W. H. Wicks, Limited, of London, which trades as Central Carriers, and also a controlling interest in Slaughters Deep Freeze Transport, Limited, of London and Grantown-on-Spey. Mr. Raymond Slaughter will remain managing director of Slaughters Deep Freeze Transport, Limited, and will develop the service in the Scottish area where the company plans to open a second depot shortly. Mr. Wise said: "As a result of these changes we shall be able to offer a much improved meat transport service throughout England, Scotland and Wales. We have already increased the fleet of refrigerated container vehicles for the run from Scotland to London and the South East." Mr. Wise is now the sole director of Transport (Bristol), Limited.

Bus and Coach Developments

Lowestoft Corporation proposes a daily service between Pakefield (Tramway Hotel) and Pakefield (Grayson Avenue) via Grayson Drive.

United Counties Omnibus Co., Limited, applies to withdraw the Birmingham—Northampton section of its Birmingham—Lowestoft express service and to withdraw from the pooling arrangement with Eastern Counties and Midland Red on this route.

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SOUTH WALES DISTRIBUTION

Haulier Occupies Large New Warehouse

LONG- AND SHORT-DISTANCE FACILITIES AVAILABLE

BIG strides have been made in recent months by Gomm's Commercial Motors, Limited, the Cardiff haulage and warehousing contractor, in the development of a storage and redistribution service which it offers manufacturers interested in the South Wales market. Since October, 1955, this company has been a member of the group headed by Gwent and West of England Enterprises, Limited, whose other interests include industrial banking, foodstuffs, cinemas and catering, certain manufacturing outlets, garages and motor agencies, principally in South Wales and the West Country.

Frontage of new warehouse and offices occupied by Gomm's Commercial Motors in Cardiff. The office accommodation is shared with other companies. In the rear is parking area and site for a service station

Last month Gomm's moved its warehousing activities from East Canal Wharf, in the centre of Cardiff, to new offices, depot and warehouse at Carlyle House, 507 Newport Road, the principal entry into the city. The salient feature of this spacious site from the transport viewpoint is the 36,000 sq. ft. brick-built warehouse, all accommodation being on one floor at ground level. This is available for long- or short-term storage of a wide range of products of a suitable character for subsequent distribution by a fleet of local delivery vehicles as required. The advantage of this method of distribution, which is being increasingly offered by hauliers, is, of course, that goods are delivered very much more quickly after receipt of order than if they had to start out from a distant manufacturer.

The South Wales distribution area

Delivery Area

The delivery area embraces the whole of South and West Wales and Monmouthshire, i.e., all places south or west of a line joining Cardigan, Lampeter, Llandovery, Brecon, Abergavenny, Monmouth and Chepstow. Daily deliveries are made to principal towns, other places are served twice or thrice weekly according to the traffic offering. To sparsely populated areas deliveries are effected not less than once weekly. Daily trunk services are operated between Cardiff and London, Manchester and Liverpool areas, and there is an office and depot in London and an agency office in Liverpool. Trunk vehicles carry both warehouse and general traffic, the former being collected from manufacturers' premises to be stored in Cardiff while awaiting delivery instructions. In addition, an extensive business is undertaken in full and part loads from South Wales to the London, Liverpool and Manchester areas, and also in the reverse direction, as distinct from goods carried in connection with the warehousing and distribution.

Foodstuffs, confectionery and kindred goods are specialised in for warehousing purposes. Among the items normally handled are packaged and canned goods of many varieties, margarine and cooking fats, cereals, dried fruit in cases or cartons, soya flour in bags, chocolates and confectionery, etc. Most of these lines are ordered out on customers' documents to save time and elaborate paperwork. Delivery orders are normally received in duplicate, one of which is left with the consignee, who signs the other as a receipt. In the ordinary way a comprehensive rate will be quoted for the trunk haul, handling into and out of store, storage, distribution and inventory. A physical stock check is carried out weekly but a theoretical check is kept on a daily basis.

The warehouse is built of Marston Red bricks and an unobstructed height of 16 ft. 4 in. is available. A special Magnesite dustproof cement floor has been laid. Mechanical handling has been introduced to exploit the storage area to the full; the equipment comprises a Yale K51 fork-lift truck, which inter alia will lift palletised goods from stacks to loading bank level at one side of the warehouse, and supplementary pallet trucks. The size adopted for the pallet stock is 40 in. by 40 in. A Collis portable electric RolaVeyor is also in use.

Part of the interior of the 36,000 sq. ft. warehouse

Area distribution and long-distance vehicle in the fleet

The Fleet

At this stage the fleet totals 51 vehicles, all on A-licences, and includes four eight-wheelers and two Thames Trader 12-ton articulated vehicles employed exclusively on trunk hauls, four platform or boxvan vehicles in the 5-7 ton range for general purposes, and 12 5-ton vans on local distribution. The balance of the fleet is made up of 28 Thames 5-ton vans whose function is to deliver the products of a large local bakery (cake and confectionery), to stores throughout the southern half of England, south of a line drawn from Wrexham to Kings Lynn, but excluding Kent. These deliveries are scheduled to meet the stringent requirements of the consignees, which means that the vehicles are available empty at a predetermined place and time. This helps materially in the arrangement of return loads to Cardiff, and boxvan construction makes this section of the fleet particularly suited to warehouse traffic.

Workshop Facilities

At the rear of the site, which includes extensive open parking accommodation, it is proposed to erect a modern workshop, a building 175 ft. by 110 ft. with inspection pits and comprehensive equipment adequate to maintain a fleet of nearly one hundred vehicles. A washing plant with power hoses will be installed for cleaning down the vans, which form a major portion of the fleet. There is also an extensive parking site attached with sufficient accommodation to stable the whole fleet.

The facilities available, warehousing, loading and unloading, parking and servicing of vehicles are all first class on modern lines, and this, coupled with the efficient service rendered to their customers, holds a bright future for advancement. As already suggested, the integration of haulage with warehousing and area distribution is on the increase; more and more traders (unless they already have elaborate distribution systems) are looking to the carrier to buffer their stocks and to save them the capital needed for vehicles

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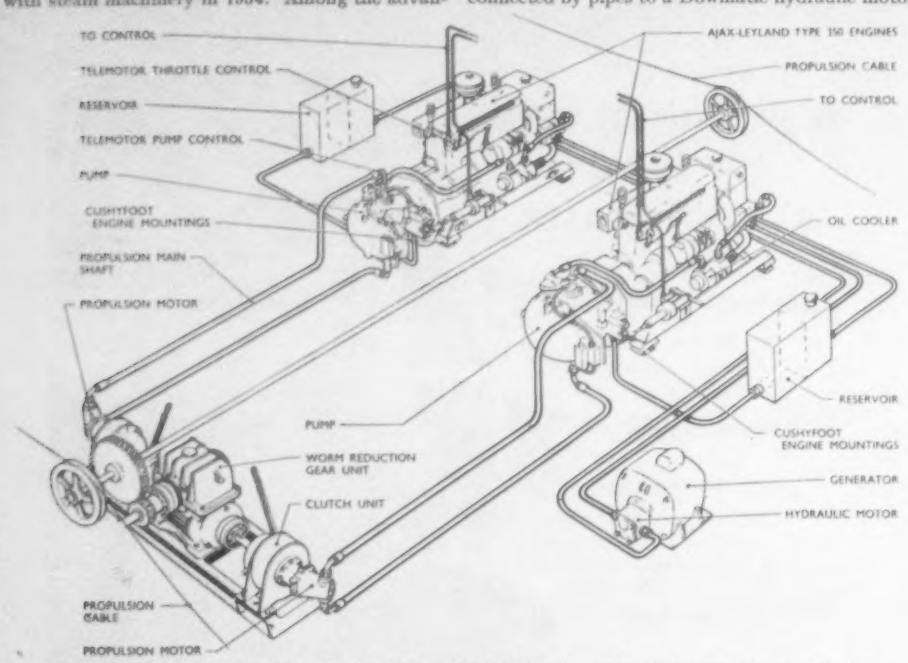
WINDERMERE FERRY CONVERSION BY LEYLAND

Advantageous Use of Dowty Hydrostatic Transmission

ONE of the first applications of hydrostatic transmission to marine propulsion has been made in the conversion to diesel power by Leyland Motors, Limited, of the Windermere vehicle ferry *Drake*, which originally entered service with steam machinery in 1954. Among the advantages secured with the new machinery are a lake crossing reduced from 7 to about 4 min., a reduction in the annual fuel cost from some £2,500 to an estimated £300, a reduction in weight of propulsion machinery from 6 to 3 tons and the ability to retain the ferry continuously in service, since duplicate diesel-hydraulic sets are installed, only one of which provides the necessary propulsive effort for speeds of up to 7 or 8 knots.



Diagrammatic arrangement of the new diesel-hydraulic propulsion machinery of the Windermere ferry "Drake"

The new propulsion machinery comprises two Leyland-Ajax Amazon diesel engines, each directly coupled to a Dowty Dowmatic hydraulic pump connected by pipes to a Dowmatic hydraulic motor driving a worm reduction final-drive unit. The vessel is of flat-bottomed construction 95 ft. long overall (with loading ramps extended) and 65 ft. long b.p., with moulded breadth of 30 ft. and depth of 3 ft. 6 in. Propulsion is by a mainshaft running across the vessel with a large-diameter pulley at each end, around which are passed parallel cables anchored to each shore.

The original machinery consisted of a coal-fired vertical crosstube boiler supplying steam to a two-cylinder single-acting steam engine. The engine was coupled to the propulsion mainshaft. This machinery was selected for its silent operation and because it was capable of holding the vessel hard in against the bank while vehicles were driven on and off. This last factor is of particular importance when heavy goods vehicles are being discharged, since the ferry machinery must resist the reaction of the driving wheels of the vehicle, which tends to push the vessel away from the bank as it is being driven off.

The steam machinery satisfied the requirement of bank-holding, since it was a simple matter to open the engine throttle as soon as the bank was reached, thereby applying maximum torque to the mainshaft and exerting a constant pull through the cables from ship to shore. The original ferry machinery also included a small diesel generating set to provide lighting for the vehicle deck and lighting and heating where required in the accommodation.

High Operating Cost

Unfortunately, operating costs with this type of machinery proved to be extremely high, the annual fuel bill alone approaching £2,500. The boiler had to be constantly in steam and the fire damped down overnight, with an unavoidable unproductive use of fuel. To reduce the high cost of operating the ferry and to provide a more economical service, the joint Ferry Committee of the Lancashire and Westmorland County Councils decided to investigate the substitution of diesel machinery for the existing steam engine. Tenders were invited from a number of leading manufacturers.

In addition to the requirements of low noise level and bank-holding ability imposed on the original steam machinery, the County Councils stipulated that the diesel machinery should be capable of applying full torque to the propulsion mainshaft for periods of up to 30 min. while holding the bank. The provision of two completely independent full-duty diesel propulsion units was also required to enable one set to act as standby or be available for overhaul while the other was at work. This had not been stipulated with steam propulsion and in the past it has been necessary to close the ferry for overhaul of the engine.

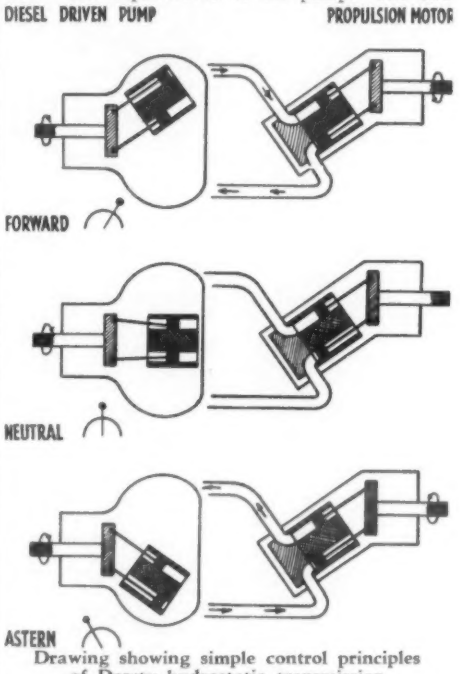
The ferry, recently re-engined by Leyland Motors, Limited, appropriately disembarking a Leyland articulated lorry

Leyland engineers considered the various forms of propulsion available in combination with the diesel engine. The majority, to satisfy the bank-holding requirements, indicated bulky units, particularly with regard to the amount of heat dissipation necessary to provide maximum torque at zero revolutions of the mainshaft. The requirement of two propulsion units within the existing machinery space also obviously indicated transmission units of maximum compactness. After study of these two conflicting factors a scheme was submitted which incorporated two Leyland-Ajax 5.75-litre marine diesels and a duplicate hydrostatic transmission system using Dowty components. The tender was accepted by the County Councils and detail design and manufacture proceeded.

The Leyland-Ajax Amazon is a six-cylinder four-stroke direct-injection diesel engine based on the Leyland O350 automotive engine, which has won a reputation for reliability and long life and of which over 100,000 are in service all over the world. Adaptations for marine service by Ajax Marine Engines, Limited, include the fitting of water-cooled manifolds with detachable covers for easy cleaning, cast-iron sump, oil cooler and, in this application, closed-circuit fresh-water cooling with separate heat exchangers for each engine. The engines are continuously rated for this installation at 40 b.h.p. at 1,400 r.p.m., with a maximum rating of 90 b.h.p. at 2,200 r.p.m. Two 350-gal. fuel oil tanks are mounted on the superstructure.

Hydrostatic Transmission

Each engine is direct-coupled to a Dowty type 240 variable-displacement hydraulic pump. The pumps are of the axial-piston tilting-head type, the angle of operation (swash angle) being variable in order to adjust the stroke of the pistons and hence the displacement of the pump. The two diesels and their pumps are mounted side by side on Metalastik Cushyfoot mountings on a substantial subframe. Each pump unit is coupled through pipes to a hydraulic motor, which utilises identical parts to the pump but is permanently set to an angle of 35 deg. Each motor drives through a single dryplate clutch to a common worm reduction gearbox coupled to the existing double helical pinion meshing with the wheel on the ferry mainshaft. The two clutches are fitted so that each engine unit can be isolated from the propulsion system. The principle governing the means of obtaining ahead, neutral and astern drive through the Dowmatic transmission is shown in an accompanying illustration.



Drawing showing simple control principles of Dowty hydrostatic transmission

Hydraulically, each propulsion unit comprises a pump, motor and two main connecting pipes in the primary circuit. A low-pressure circuit is also used to boost the suction side of the primary circuit. This secondary system is powered by a gear pump driven from the free end of the engine crankshaft. Each propulsion unit is remotely controlled from the bridge of the vessel by a Telemotor system. Two levers are provided for each unit, one of which controls the injection pump rack setting and the other the swash angle of the pump through a servo jack. Only very slight manual effort is required to adjust the swash angle and control the speed of the vessel.

Use of hydraulic transmission has simplified installation problems in this conversion, for it has enabled the diesel engines to be located in what was the boiler room, with the motor and final drive unit on the opposite side of the vessel in the engine room. Full advantage has been taken of the installational flexibility of this type of machinery to reduce structural alterations to a minimum.

Previously served by a separate diesel-electric set, the small electrical power requirements of the ferry are now adequately met by a 2-kW variable-speed 110-volt generator coupled to a hydraulic motor—a system developed by Leyland for marine installations. The hydraulic motor is powered by a gear pump mounted in tandem with the transmission low-pressure pump on the free end of each engine.

The new machinery appears to have secured all the requirements of the operator. Initial installation costs have been kept low, since the power units

(*Continued on page 7*)

STC AND RAILWAY MODERNISATION

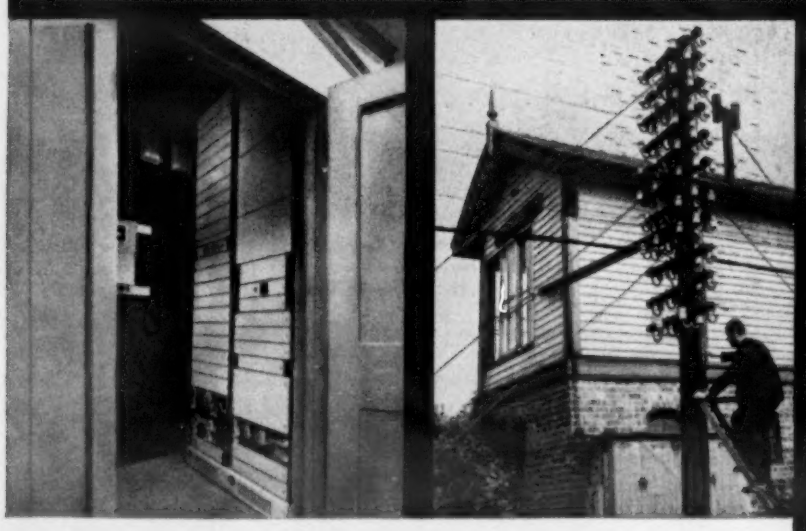
CARRIER CABLE & TRANSISTOR EQUIPMENT FOR BRITISH RAILWAYS, LONDON MIDLAND REGION

This complete telephone cable communications system was engineered, manufactured and installed by STC as part of British Railways Traffic Reorganisation Scheme.

CABLE
All-Plastic Insulated and sheathed Carrier Telephone Cable on main and spur routes—total route length, 204 miles. Major part installed aerially, attached to a messenger wire by PVC covered lashing wire, the remainder laid in troughing.

TRANSMISSION EQUIPMENT
Cable is equipped with terminal and repeater equipment of the STC All-Transistor 12-circuit 2-wire Carrier Telephone System which provides twelve 2-way high quality wide band circuits on one cable pair. Features of the system are low power consumption; out-of-band signalling, in-built carrier supplies; automatic gain regulation. On any one of the twelve circuits it is possible to employ up to 24 V.F. telegraph circuits.

STC supply many different types of cable and multi-circuit transmission equipment for Railway Communications.



RIGHT: STC Engineer inspecting a 1 quad carrier cable installation on British Railways Manchester-Carlisle line.

LEFT: STC unattended repeater equipment at Grange-Over-Sands.

Standard Telephones and Cables Limited
TELECOMMUNICATION ENGINEERS
CONNAUGHT HOUSE · ALDWYCH · LONDON · W.C.2
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REDESIGNED MORRIS 30 CWT.

Fitted with FG Forward-Control Cab

ALREADY in wide use on 2-, 3- and 4-ton vehicles in the B.M.C. Series IV range, the new FG forward-control cab, with doors angled across the rear quarters and other features designed for ease of access, safety and comfort, has now been adopted for a redesigned Morris-Commercial 30-cwt. capacity chassis. Replacing the Morris-Commercial 30-cwt. vehicle, which was introduced in 1937 and emerged through occasional modifications as the LD5, the new 1½-ton Series IV has a number of mechanical changes as well as the eye-catching FG cab and promises to be as successful as its predecessor.

Latest of a long line of successful Morris-Commercial 30-cwt. goods vehicles, the 1½-ton Series IV, has the FG cab for easy access and handling

Certain components—for example, the engine and rear axle of the LC5, which are considered by the manufacturer to be supreme in their class—have been retained in the new chassis. The power unit can be either the B.M.C. petrol or diesel four-cylinder engine of 2.2 litres capacity, the petrol engine providing 61 b.h.p. at 3.500 r.p.m. and the diesel 55 b.h.p. at similar crankshaft speed. Transmission is through a Borg and Beck 10-in. single dryplate clutch, B.M.C. four-speed synchromesh (except first) gearbox and two-piece propeller shaft with Hardy Spicer needle-roller-bearing joints and rubber-mounted centre bearing.

Girling hydraulically operated brakes, two-leading-shoe front and leading-trailing shoe rear, are 12 in. in diameter and provide a total lining area of 162 sq. in. Five-stud 6.00-16 steel disc wheels, single all round, take 7.50-16 eight-ply rating tyres. A Cam Gears Type H worm and cam steering gear is fitted.

The Series IV 1½-tonner can be supplied with right- or left-hand control and complete with dropside or platform body. Alternatively, it is available in chassis-cab or chassis-front end form for the fitting of individual bodywork. Prices range from £530 for a chassis-scuttle and £629 for a chassis-cab to £699 for a complete dropside lorry when fitted with the petrol engine; equivalent diesel-engined versions cost £105 more in each case.

WINDERMERE FERRY

(*Continued from page 6*)

are connected to the final drive only by hydraulic pipework, while the same absence of mechanical links has permitted flexible mountings that adequately insulate the engines from the light hull structure. The overall efficiency of the hydrostatic transmission is considerably higher under the service conditions obtaining than could be provided with a hydrokinetic system. Moreover, the characteristics of the system permit sufficient torque to be applied to the mainshaft for bank-holding for an unlimited period of time at only very low engine speed and at about 1-1½ deg. swash-plate angle, without expensive heat-dissipation equipment, positive hydraulic lock preventing movement away from the bank.

In a fortnight's operation, fuel consumption has been around 12 gal. in a 14-hr. day, a rate likely to be improved on as initial operation has been largely experimental, compared with a previous consumption of 1 ton of steam coal. Operational costs in other respects are likely to be low, too. The durability and easy repair and maintenance of Leyland diesel engines is already well known, while the Dowmatic units, which are designed for continuous working pressures of 4,000 p.s.i. and have accumulated many hours of endurance testing at 5,000 p.s.i., operate on the ferry at the low pressure of 1,000 to 1,500 p.s.i. Thus it appears probable that the current 3,000-hr. overall period of units working at the full rated pressure, which is expected to be raised in the near future to 5,000 hr., will be exceeded in the ferry installation.

FORTHCOMING EVENTS

Until May 1.—R.C.T.S. "Salute to Steam" Exhibition. Leeds City Museum.

Apr. 25.—I.R.T.E. (Scottish) Annual general meeting. Inst. of Engineers and Shipbuilders, Elmbank Crescent, Glasgow. 7.30 p.m.

I.R.S.E. (Bristol) Annual general meeting. J. V. Nicholson, "Single Line Working." Bristol Temple Meads Station. 6 p.m.

Apr. 26.—I.Loc.E. C. F. Ryan and B. B. Hindy, "Steel Wheels and Tyres." 1 Birdcage Walk, S.W.1. 5.30 p.m.

Inst. T. (York G and S) Annual general meeting. Room 33, Railway Headquarters Offices, York. 7.15 p.m.

I.T.A. G. A. Ashley, "The Transport Ferry Service, with particular relationship to the European Free Market." Lecture Theatre, R.S.A., John Adam Street, W.C.2. 6.30 p.m.

I.R.T.E. (N.E.) Annual general meeting. Three Tuns Hotel, Durham City. 7.30 p.m.

R.C.T.S. (East Midlands). R. E. Tustin, "London and South Western Suburban." Thurland Hall, Nottingham. 7.10 p.m.

Apr. 26—29.—Institute of Transport Fortieth Congress, London.

Apr. 27.—S.C.T.S. Visit to British Railways signalbox at East Croydon.

I.Mech.E. Annual meeting. 1 Birdcage Walk, S.W.1. 6 p.m.

I.R.T.E. (East Midlands). Annual general meeting. Mechanics Institute, Nottingham. 7.30 p.m.

Apr. 28.—I.R.T.E. (Midlands). Visit to Leyland Motors Limited, Leyland.

I.Mech.E. (Graduates Section). T. J. Davies, "Paper Making." 1 Birdcage Walk, S.W.1. 6.30 p.m.

Apr. 30.—R.C.T.S. Annual dinner. Windsor Castle, 333 Vauxhall Bridge Road, S.W.1. 7 p.m. for 7.30 p.m.

I.R.T.L. H. V. Jinks, "The Norwich Tramways" 153 Drummond Street, N.W.1. 6.30 p.m.

NEW YARD AT MARGAM

(*Continued from page 3*)

the yard the turnout fittings were positioned on the Paddington side of the existing two-track Water Street bridge, necessitating its reconstruction as a four-track bridge. Since the local authority had plans for a future trunk road by-passing Pyle the new bridge was built on a new alignment and the road widened, the local authority contributing to the cost. One abutment has been constructed in the form of a centre pier to allow for future widening.

Reception Sidings

The 12 reception sidings converge to a single track over the hump which has a vertical curvature of 11 chains radius. The gradient from the hump falls sharply (1 in 18) towards the sorting sidings, flattening out to 1 in 80 through the two 72 ft. long primary and eight 36 ft. long secondary retarders. All track joints in the yard with the exception of insulated joints have been site-welded by the Thermit or German Quick process.

Out of the 50 sorting sidings 15 have been allocated to Steel Company of Wales traffic and lines direct to and from its works have been provided in association with the firm. A separate line for outgoing empty wagons from the steelworks to the up arrival line has been provided and two bridges constructed to take this line over the lines from the yard. Lighting of the whole yard is provided by ninety-nine 55-ft. high steel lighting towers each capable of mounting four 1,000 watt floodlights and controlled from one console in the control tower, another in the sorting sidings signalbox also individually at the foot of each tower. Lighting is also provided at a lower level where necessary.

Control Tower

The control tower on the down side of the yard is erected on three separate reinforced concrete raft foundations with perimeter beams, each raft separated by an expansion joint to allow for differential settlement. The building itself is also constructed in three parts. The control tower and its main entrance lobby and staircase to first floor, giving access to relay and battery rooms; second floor, air-conditioning plant; and third floor, control room. A lift for access to all floors is incorporated. The compressor room wing is a single storey unit, housing compressors and standby generator. The relay room wing has traffic office, workshops, boiler room and other accommodation on the ground floor and the relay room and battery room on the first floor. The superstructure consists of three separate reinforced concrete frames with brickwork cladding except for the rear of the tower where the staircase, which is cantilevered from the reinforced concrete lift shaft, is enclosed by a glass curtain wall secured to a steel framework.

(*To be continued*)

Last of trolleybuses in East London: A London Transport Leyland trolleybus in Markhouse Road, Walthamstow; A.E.C. with Brush body at Victoria and Albert Docks terminus in 1937, when 687 ran temporarily to Chingford Mount; below, L.T.E. A.E.C. RM-type bus on new route in Powerscroft Road, Clapton, part of the 256 Chingford—Moorgate service; right, RM on 58 which replaced the 685 trolleybus route in February

Can you spot magnesium . . .

. . . on the Wessex?

No, not on a normal service aircraft, but if the magnesium alloy parts of the fuselage were painted white you would see a picture like the one above. The Westland family, Whirlwind, Widgeon and Wessex, all take advantage of a combination of aluminium and magnesium alloys for maximum strength with extreme lightness.

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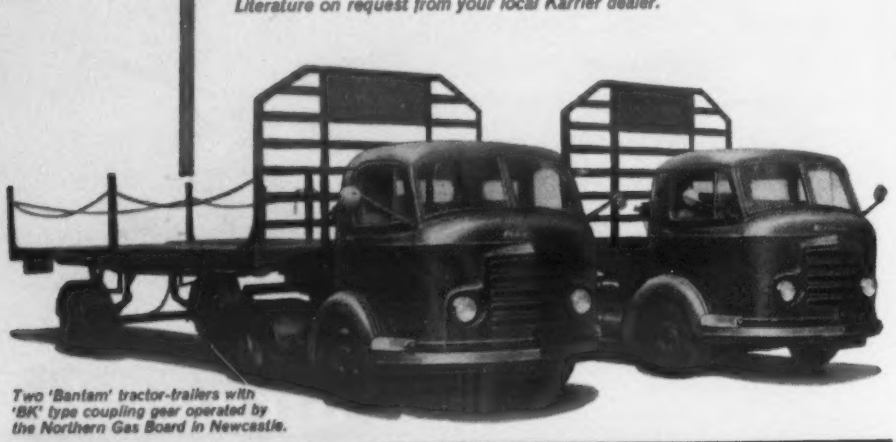

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NEWS FROM ALL QUARTERS

L.M.R. Stations Closing

A list of stations closing partially or completely on and from May 2 has been announced by the London Midland Region. It comprises: Hadnall, Smithy Bridge, Sharnbrook and Sefton Park.

Háyling Island Toll Bridge Freed

Langstone Bridge, the entry to Hayling Island, Hants, has been freed from road tolls by Hampshire County Council. The ceremony was performed on April 11 by the chairman of the County Council, who led a procession of old vehicles over the bridge.

Banks to Finance European Transport

A group of European banks has joined together in a new company for financing investments in the Continental transport industry. The company is to be called Eurotransport and it will have an initial capital of 45,000 new francs. Participants are the Crédit Commercial de France (which will be responsible for management), the Compagnie d'Outre-Mer pour l'Industrie et la Finance, Banque Rothschild, Compagnie Financière, Mediobanca, Banca Credita Finanziero, Banque Lambert, Berliner Handelsgesellschaft and the Bayerische Staatsbank.

Eastern Region Pleased with Freight Traffic

Last year the Eastern Region, it is now known, carried nearly 1 million tons more freight than the year before. This year it has doubled its target to 2 million more tons. Results received for the first quarter indicate that this target should easily be reached. Already, for the first 13 weeks this year, freight tonnage shows an increase of 1,367,500 tons. Maintaining the lead will become more critical as times goes on as more traffic was carried for heavy industry in the second half of last year than in the first six months. Nevertheless, the present policy of quoting competitive rates and improving freight services is showing results.

Dreams of Great Central Association

The prospect of a charter service for diesel railcars between Sheffield and London was put before a meeting of the newly formed Great Central Association in Nottingham recently. The association came into existence to "restore reasonable passenger services on the old Great Central Line between London Marylebone and Sheffield Victoria, to give better connections with Reading, Banbury and Oxford in the south and Huddersfield, Halifax, Bradford, York, Doncaster and Hull in the north." Mr. P. Walker, of Northwood, Middlesex, chairman, said they had put the charter idea to British Railways, which seemed interested and invited the submission of draft timetables from which the charter cost per mile would be assessed. British Railways had, moreover, pointed out that railcars were in great demand and it was "unlikely that any would be available for charter for about two years." In discussion at the meeting it was suggested that the scheme could be run in several ways. The association could either guarantee B.R. a fixed revenue to provide services for them, or buy or hire diesel cars and ask the railways to operate them. A private or public company could be formed to raise capital.

Glasgow Central Resumes Sunday Opening

Glasgow Central Station is now open again on Sundays. Sunday services were diverted during the winter to depart from and arrive at St. Enoch or Buchanan Street stations.

February Road Casualties

Accidents on the roads of Great Britain during February caused the deaths of 458 people, 86 more than in February last year. Casualties increased by 33 per cent, and those sustained by drivers of mopeds increased by 85 per cent.

Piggyback Operations Grow

Last year about 400,000 trailer- or container-on-flatcar (i.e. "piggyback") loadings were reported by U.S. railroads, compared with 168,000 in 1955. A growth of 20 per cent annually has been forecast, but limitations are foreseen. One railroad management says that 150 miles is the minimum economical haul, another says 300 miles.

Pease Pottage By-Passed on Brighton Road

Seven miles of continuous dual carriageway on the London—Brighton road (A23) between Bolney Common, south of the village of Handcross, and the Crawley by-pass were opened in time for Easter traffic. They include a diversion around the village of Pease Pottage, where the old road was the scene of serious traffic congestion during summer weekends.

Automatic Warehousing Looms Ahead

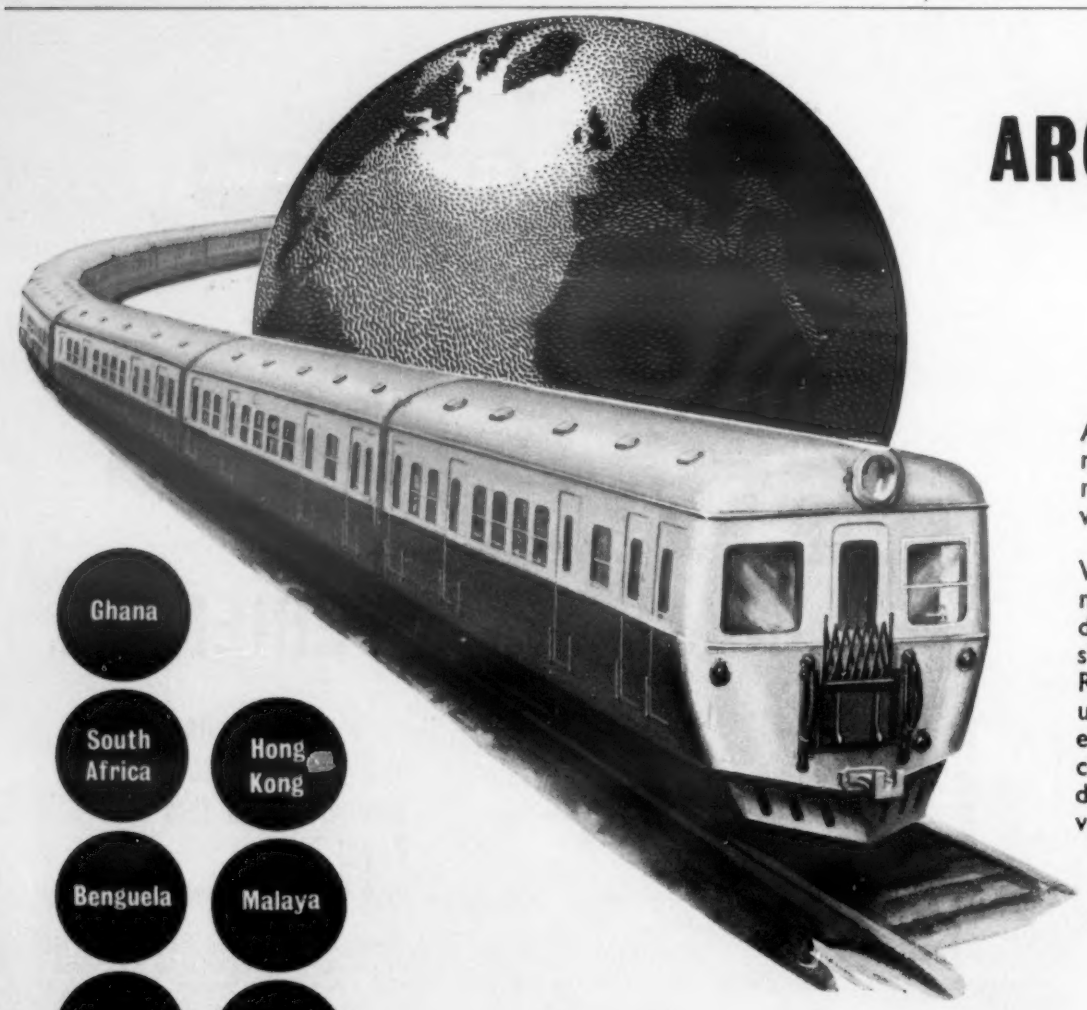
John Brown and Co., Limited, has joined with the Solartron Electronic Group, Limited, in the formation of a new company—Solartron-John Brown Automation, Limited—for the manufacture and marketing of the American Gumpertz automatic warehouse system. Orders are fed into an electronic machine which electro-mechanically selects the items off shelves and places them on to a moving belt.

Representations to B.T.C. Advisory Group

The Special Advisory Group on the British Transport Commission held its first meeting on Tuesday last week. As its work progresses the group will be inviting written and oral evidence from various quarters. Meanwhile it will be glad to receive in writing representations from interested parties. These should be addressed to the secretary, Special Advisory Group on the British Transport Commission, Ministry of Transport, Room 359, the Adelphi, John Adam Street, London, W.C.2.

New Brighton Ferry Bridge

Last week the Minister of Transport opened the new North Passenger Bridge which connects the ferry pier at New Brighton with the floating landing stage. The bridge has been constructed to withstand the strong winds frequently occurring in the region and the consequent stresses set up by the violent motion of the floating landing stage—regarded as one of the most exposed in the world—and the berthing of the ferry vessels. The bearings of the bridge allow an unusually wide range of movement, both vertical and horizontal.



AROUND THE WORLD....

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COMMERCIAL AVIATION

Action against Capital

ANGLO-FRENCH MOVES

AN action was filed in a New York Federal Court on April 18 by Vickers-Armstrongs against Capital Airlines for payment of the full amount due on its secured promissory notes, and foreclosing the chattel mortgage on the whole of Capital's flight equipment, which includes a fleet of 56 Viscount aircraft. The court was asked to appoint a receiver for the airline pending an accounting of assets covered by the mortgage, which includes "all aircraft, aircraft engines, propellers and appliances, and spare parts wherever they are located." It was claimed that overdue payments of nearly $12 million (about £4 million) had not been met within the three days given to Capital last week, and all the notes for a total sum of nearly $34 million became due and payable. Note holders were still willing to co-operate in a sound plan which offered adequate provision for the notes and for the solution of Capital's financial problems.

Portsmouth Heliport

Portsmouth Parks and Open Spaces Committee, with one abstention, reaffirmed its decision at a meeting on April 11 not to allow a heliport on Southsea Common. The chairman (Councillor G. Collins) had reported that a meeting had taken place with representatives of Rotorports, Limited, which wished to establish a three-cornered helicopter link with Ryde and Southampton. The assistant town clerk (Mr. R. Neave) stated that no official approach to British Railways had been made by the company until the previous week. Representatives of the company had indicated that they did not wish to pursue the use of the Hard until they had used the Common, and they were now asking for a trial period of a year.

Rebates off Air-Sea Trips

Rebates totalling 20 per cent may be given to travellers making one half of their journey by B.O.A.C. and the other half by sea. They apply almost world-wide, the exceptions being on some routes in North and South America and the adjoining islands. Following an I.A.T.A. proposal to abandon such arrangements a postal vote among I.A.T.A. members resulted in airlines being able to offer a 10 per cent reduction on the single fare provided a shipping line offers a similar reduction on the other part of the journey. Under this scheme the cost of a return sea and air trip between London and New York is £138 5s. using the cheapest travel in both directions. A similar return trip to Durban costs £225 10s. and to Sydney £363 12s. This will come down to £324 4s. when the new economy air fare recently announced comes into effect on October 1.

Anglo-French Collaboration

Britain and France are to collaborate in developing vertical take-off aircraft, on which joint studies will soon begin. Other members of Nato will be invited to take part in the project. This decision followed talks which Mr. Sandys, the Minister of Aviation, had with the French Minister of Armed Forces, M. Messmer, and the Minister of Air, M. Blancard, in the course of a four-day visit to France. They discussed proposals for Anglo-French co-operation on civil and military aircraft, guided weapons, and electronic equipment. Mr. Sandys also saw M. Buron, the Minister of Transport. They approved discussions taking place between British and French firms with a view to possible collaboration in the construction of a supersonic civil air liner, and welcomed the progress of plans for setting up a system of air traffic control in Western Europe, to be known as Eurocontrol. They also agreed to initiate joint work on the development of an automatic landing system, and decided to try out some French electronic equipment at the experimental establishment at Bedford.

January Activity at British Airports

Air transport movements at United Kingdom aerodromes in January, 1960, numbered 20,622, an increase of 21 per cent compared with January, 1959; the number of passengers handled increased by 33 per cent to 447,456. Freight picked up and set down amounted to 16,113.6 short-tons, an increase of 66 per cent. Airports in the London area as a whole showed an increase of 14 per cent in air transport movements and an increase of 31 per cent in the number of passengers handled. At London Airport there were 8,251 air transport movements, an increase of 16 per cent compared with January, 1959, and 267,890 passengers were handled, an increase of 36 per cent. Most airports showed increases in passenger traffic and amongst these were Birmingham (Elmdon) by 98 per cent to 9,487, Southend (Rochford) by 65 per cent to 5,062, Liverpool (Speke) by 61 per cent to 6,673, Glasgow (Renfrew) by 51 per cent to 31,390, Belfast (Nutts Corner) by 48 per cent to 20,655 and Manchester ((Ringway) by 46 per cent to 30,644. Other large increases in passenger traffic were at Leeds—Bradford (Yeadon) by 177 per cent to 1,056, Newcastle (Woolsington) by 147 per cent to 2,199 and Southampton (Eastleigh) by 94 per cent to 1,696.

S.B.A.C. Records

The 1960 flying display and exhibition of the Society of British Aircraft Constructors which is to be held at the Royal Aircraft Establishment, Farnborough, on September 5-11 (the public being admitted on September 9, 10 and 11), will be unusual on three counts. It will be the 21st to be staged since the first in 1932. For the first time, applications for stand space in the exhibition building and for enclosures have had to be turned down in spite of a considerable increase in the available area. Although the floor space of the exhibition building will be the same as in 1959—it was rebuilt and enlarged in 1957—the actual stand space, including the equipment display, will be greater than ever before. Equipment manufacturers will get an increase of about a third while airframe and aero engine manufacturers will be allotted an extra 8,000 sq. ft. The two big airframe groups, Hawker Siddeley and British Aircraft Corporation, will each have consolidated stands covering 7,500 sq. ft., while Westland, the helicopter group, will have 2,000 sq. ft. The total, 17,000 sq. ft., will be 7,000 sq. ft. more than the companies, which comprise the new groups, had last year. The main aero-engine companies, Bristol Siddeley and Rolls-Royce, will each have 2,000 sq. ft., the total of 4,000 sq. ft. being 1,000 sq. ft. more than in 1959. The extra area allotted to stands will mean less room for gangways and open spaces in the building. But the layout has been redesigned in such a way as to enable visitors to move around as freely as in previous years.

TRANSPORT AND STORAGE GROUP

William Fraser

Mr. WILLIAM FRASER, O.B.E., M.A., M.Inst.T.

• • • • • •

Promising results are reported by Transport Development Group, Limited, which holds its annual general meeting next week. Managing director of this vigorous concern and ultimately responsible for some 1,000 vehicles on local and trunk haulage, 350 tugs and barges, 30 wharves and 12 cold stores is Mr. William Fraser. Born in Inverness in 1908, he graduated in Arts at Glasgow University and entered the service of the Trent Navigation Company at Nottingham in 1933. As the chief commercial executive of that undertaking, he was responsible for a substantial development and extension of the waterway service between the Humber ports and the Midlands, whereby road transport vehicles were used increasingly for collection and delivery services over an extended area, so that a much larger territory in the Midlands received the benefit of water transport conveyance. During and after the 1939-45 war he was a member of various committees set up by the Ministry of Transport, dealing with the inland waterway industry. He was awarded by the Institute of Transport the Canal Association Award for 1944-45 and in June, 1947, he acted as spokesman for the British delegation at the International Conference of Inland Waterways held in Paris. On August 1, 1947, the Trent Navigation Company was nationalised and thereupon Mr. Fraser accepted the appointment of managing director of J. Spurling, Limited, London haulage and wharfage contractor, a wholly-owned subsidiary of Transport Development Group, Limited. In 1950 he became attached to the board of the parent concern (then known as General Lighterage (Holdings), Limited), which had become a public company. He became in turn deputy managing director, joint managing director and, in 1959, managing director of Transport Development Group, Limited, activities of which embrace a group of companies engaged in warehousing, wharfage, cold storage, lighterage and road transport. The services are centred principally on London, Birmingham, Cardiff, Bristol, Hull, Liverpool, Manchester, Sheffield and Glasgow. A Continental direct road service to Western Europe was inaugurated in 1957, operated in conjunction with Continental hauliers, and special trailers have been constructed which conform with the requirements of both British and Continental working. All these facilities provide transport and storage services in many different fields to a diversity of trades and industries. For services rendered to the Ministry of Food as chairman of the Buffer Depot Operators' Advisory Committee Mr. Fraser was awarded the O.B.E. in the New Year Honours List, 1958. He has been closely identified with the Institute of Transport and has contributed many papers on inland waterways to the deliberations of that body. He is a past member of the council and has served on the committees of the East Midland and Metropolitan sections.

IN PARLIAMENT

Opposition Attacks B.T.C. Group

MINISTER EXPLAINS GOVERNMENT AIMS

THE righteous horror of Opposition leaders at the absence from the special advisory group on the B.T.C. of Commission and trade union representation was heightened when on Wednesday last week they heard the Minister of Transport say that its reports or observations would not be published. After MR. P. COLLICK had described this as an "exceedingly serious statement," MR. ERNEST MARPLES pointed to a parallel in an inquiry into the efficiency of Royal Ordnance Factories—which was appointed by the Socialist Government without a trade union member. Its members were business people. The Opposition had raised a motion of censure, which was ultimately defeated by 289 votes to 226. Mr. Marples said that more than anything else we wanted speed because with the loss running at the rate it did we had to move fast. "We therefore decided on a small group of advisers who would spend virtually the whole of their time on the job."

MR. ALFRED ROBENS, who opened, roundly condemned this Government move which, he alleged, was purely a screen which it had put up to cover its own desire to carve up the railways and in fact to denationalise everything but the essential non-profit part of running the railways. The group would not be advising on an objective basis but merely giving the Government the kind of advice it wanted.

Decentralisation—Illusion or Reality?

The Government had acted in several ways, said Mr. Marples. The first was to decide that the railway deficit could not be met by loans below the line in the Budget, because there was no hope of repayment, so that such a system was dishonest to the country. Then it had been decided that there should be more decentralisation. However, "decentralisation is a meaningless word unless each undertaking is self-accounting and manages its own affairs. The moment someone else holds the purse strings, it is no good saying that one is independent." Therefore the Commission needed to have self-accounting regions with their own cash if it was to be decentralised. But the main task was the organisation of the management structure of the railways from the business point of view, and at present that structure was too large.

It was suggested the B.T.C. itself should undertake the work. He doubted whether the Commission could do it for two reasons. The first was that the Commission would be the judge in its own cause. Secondly, it had so much to do with the problem from day to day, that it might be better to have someone fresh with a new approach and possibly able to see the wood for the trees. The advisory group would spend virtually most of its time on the job. "I saw Sir Ivan Stedeford yesterday" (said the Minister) "and told him that if, when he started his work, he found that his terms of reference in any way inhibited him, I hoped that he would consult me at once so that we could consider whether the terms of reference should be broadened."

If, for example, after a month the group said that it would like some restrictions to be removed from the Commission, if it was possible to do it administratively the Government would make the decision and remove those restrictions. If legislation was needed, the Government would give instructions for it to be drafted.

Unions Will Be Consulted

The chairman of the group would invite the Commission and all the interested unions to see him either together or separately as they choose; the choice was theirs. Before the Government took a decision, the unions again would be consulted. There would, therefore, be full consultation. This form of consultation was carried out while he was at the Post Office and they proposed to extend the same thing to the railways.

Concluding, the Minister acknowledged that the Commission had had a difficult time, largely because transport had changed at bewildering speed. It had gone from mass transport at set times between two set points and had yielded to individual transport at any time between any two points. The idea now was to make the railways a viable concern, not an intolerable burden on the taxpayer nor a drag on transport. There was more than trade unions in this.

What was wrong with the railways was part of our basic transport problems, said MR. A. WEDGWOOD BENN, for the Opposition; it was not only the railways that were affected. In this he was thinking back to co-ordination. What did we mean when we talked about decentralisation, said Mr. Benn. What was already happening was that for operating purposes there was centralisation which brought economy, but for commercial and managerial purposes there was a great measure of decentralisation in the operation of the railways. But, as to regional accounting, was there anybody who believed that we should go back to the system of the Railway Clearing House with its 1,800 people trying to apportion the cost of a locomotive between the L.M.S. and the G.W.R.?

Press Comment

The new move had been attacked by members of all parties. It had been attacked by MODERN TRANSPORT, which described the Prime Minister's criticism of the railways as "unfair and misleading." The *Economist* described it as "further pinpricking of the Transport Commission." The *Daily Telegraph* leading article described it as an "unhappy board."

What they were seeking, said MR. JOHN HAY, the Joint Parliamentary Secretary, Ministry of Transport, was detailed advice that was essential before major new principles of Government policy could be applied in detail to the undertakings run by the Commission. The purpose of this group was to work out the application of those principles to the Commission. "We are not arguing in these days about who owns industry, but what makes industry efficient."

Japanese Shipbuilding Subsidy

MR. J. HOWARD asked the Minister of Transport what representations had been made to the Japanese Government following that government's decision to revive the system of subsidising the servicing of loans for shipbuilding, in view of the effect upon shipbuilding in the United Kingdom. The answer from MR. ERNEST MARPLES was that the subsidy referred to was a measure of financial assistance to Japanese shipowners and did not directly affect the United Kingdom shipbuilding industry. The Japanese Government was aware, however, that we regretted any measures designed to stimulate the expansion of Japanese shipping artificially when the world already had too much tonnage.

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LONDON TRANSPORT EXECUTIVE

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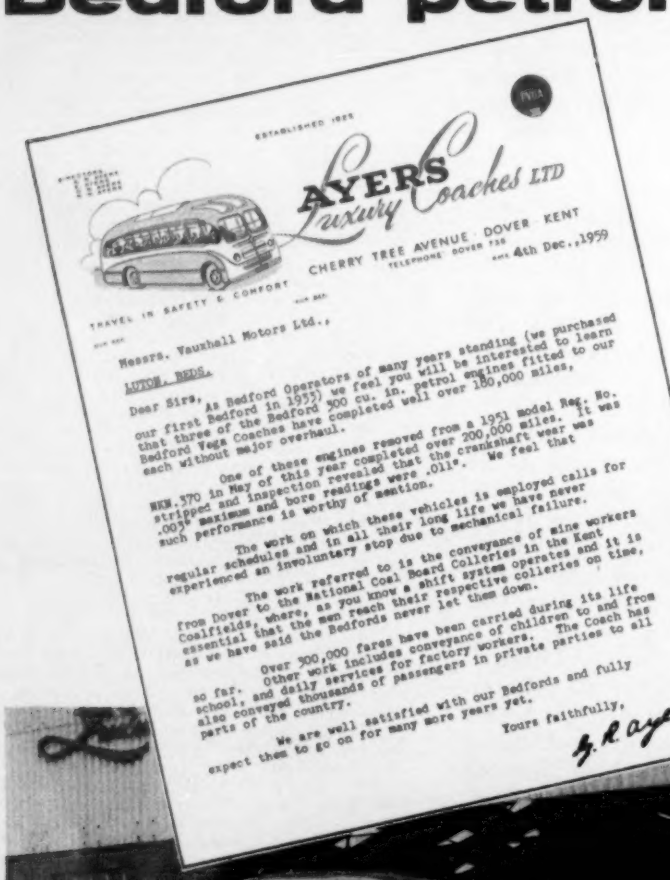
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Messrs. Vauxhall Motors Ltd.,
LUTON, BEDS.
Dear Sirs,
As Bedford Operators of many years standing (we purchased our first Bedford in 1952) we feel you will be interested to learn that three of the Bedford 300 cu. in. petrol engines fitted to our Bedford Vega Coaches have completed well over 180,000 miles, each without major overhaul.
One of these engines removed from a 1951 model Reg. No. NKM.370 in May of this year completed over 200,000 miles. It was stripped and inspection revealed that the crankshaft wear was .003" maximum and bore readings were .011". We feel that such performance is worthy of mention.
The work on which these vehicles is employed calls for regular schedules and in all their long life we have never experienced an involuntary stop due to mechanical failure.
The work referred to is the conveyance of mine workers from Dover to the National Coal Board Collieries in the Kent Coalfields, where, as you know a shift system operates and it is essential that the men reach their respective collieries on time, as we have said the Bedfords never let them down.
Over 300,000 fares have been carried during its life so far. Other work includes conveyance of children to and from school, and daily services for factory workers. The Coach has also conveyed thousands of passengers in private parties to all parts of the country.
We are well satisfied with our Bedfords and fully expect them to go on for many more years yet.
Yours faithfully,
G. R. Ayers

crankshaft wear ·003" ... bore wear ·011"

Repeat, *petrol* engine! In service since 1951. High-speed, tight-schedule work. Over 200,000 miles. More than 300,000 passengers. *And not a single mechanical breakdown!*

It used to be said that a petrol engine could never give this kind of service. Bedford prove it possible. The wear figures quoted here are really outstanding. It's clear that this Bedford petrol engine — even after such long, hard use — is good for many more years yet.

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Bedford vehicles may not often need it, but there's a nationwide Bedford service network always at the ready! Wherever you operate, you're never far from a Bedford dealer with stocks of low-cost parts. Get in touch with him and find out how Bedford can serve you. Vauxhall Motors Limited, Luton, Bedfordshire.

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NEW KINGSFERRY BRIDGE

Opened by Duchess of Kent

ELIMINATION OF TRANSPORT HAZARDS

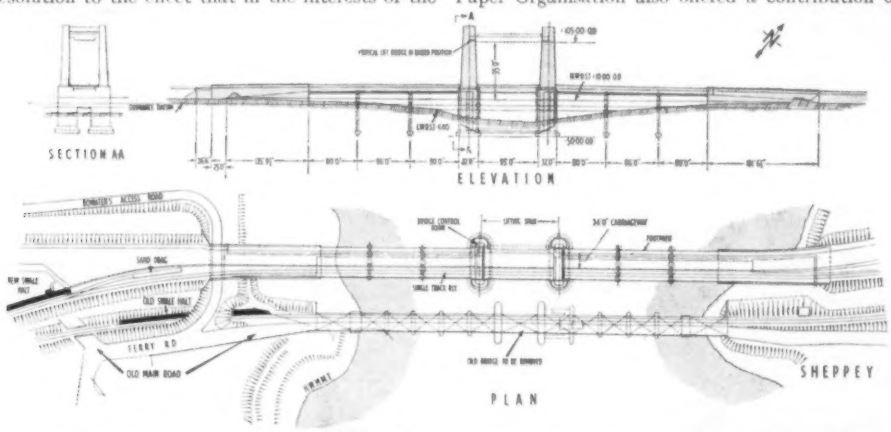
WITH the official opening of the new Kingsferry Bridge over the Swale, by H.R.H. the Duchess of Kent on April 20, adequate and reliable communication between the mainland and The Isle of Sheppey is now assured. The original viaduct, known as the King's Ferry Bridge, was built for the Sittingbourne and Sheerness Railway, and opened in July, 1860. It carried a toll road and a single-line railway, and had a lifting span for the passage of shipping. Even at the outset of its history this bridge proved to be inadequate, and the owners who had thought to operate the line with some 32-ton 4-4-0Ts, were obliged to do so with a couple of small 0-4-0Ts, an arrangement that must have been most unsuitable. In 1904 the lifting section of the bridge was replaced by a rolling lift span of the Scherzer type, the first of its kind to be erected in this country. Further modifications were made in 1906 and in 1910 the entire structure was strengthened.

By 1917 the Kent County Council had passed a resolution to the effect that in the interests of the Isle of Sheppey and the whole county, improved and toll-free access to the island was urgently needed. Despite various schemes and proposals this resolution came to nought, and then, in December, 1922, there occurred a singular accident. The bridge had always been peculiarly prone to accident by shipping, but hitherto none of these mishaps had put it out of action for any serious length of time. On this occasion, however, the damage was done by a ship carrying 4,500 tons of wood pulp, and it was 10 weeks before road communication was restored, and 11 months before rail traffic was able to cross to the island. This was the longest period during which the bridge was out of action, but it was by no means an isolated case. In fact it became a regular event that when damage done by river traffic could not be made good within a few hours, the services of the School of Military Engineering at Chatham were used to provide a pontoon ferry.

View of the new Kingsferry Bridge with lifting span in raised position; the old bridge now abandoned can be seen in the background

report was received in 1946 and suggested four alternative schemes; a tunnel, a narrow bridge for one-way traffic to be used in conjunction with the existing bridge, a bridge for road traffic only, leaving the existing bridge for rail traffic, and finally, an entirely new road and rail bridge.

After further consultation with the local authorities this latter scheme was adopted, but due to the financial situation at the time the project was again shelved. Inevitably the wheels of misadventure proved speedier than the council's resolutions, and the matter was finally brought to a head in 1954-55 by a serious accident which put the bridge out of action for five days, and an intimation from the British Transport Commission that repairs estimated to cost £245,000 would fall due within the following 12 months. The Minister of Transport was then approached, and agreed in principle to provide financial assistance subject to an appropriate contribution being forthcoming from the British Transport Commission. The Bowater Paper Organisation also offered a contribution of £50,000 subject to the work beginning by December 31, 1957. While these deliberations were in progress, Fate was still busy knocking at the door, and between October, 1956, and January, 1957, further accidents occurred to the bridge, when it was thrice out of action for several days.



Plan and elevation of the new bridge showing its position and approaches in relation to the old bridge, now due for demolition

Vertical-Lift Design Chosen

In the meantime the consulting engineers submitted proposals for the type of bridge to be built, and these comprised both single- and double-leaf bascule bridges, a swing bridge and a vertical-lift bridge. The latter was decided on, and the British Transport Commission included the new project in a Bill for the next Parliamentary Session. By the autumn of 1957 the scheme was advertised and the contract let to John Howard and Co., Limited, which at once put the work in hand.

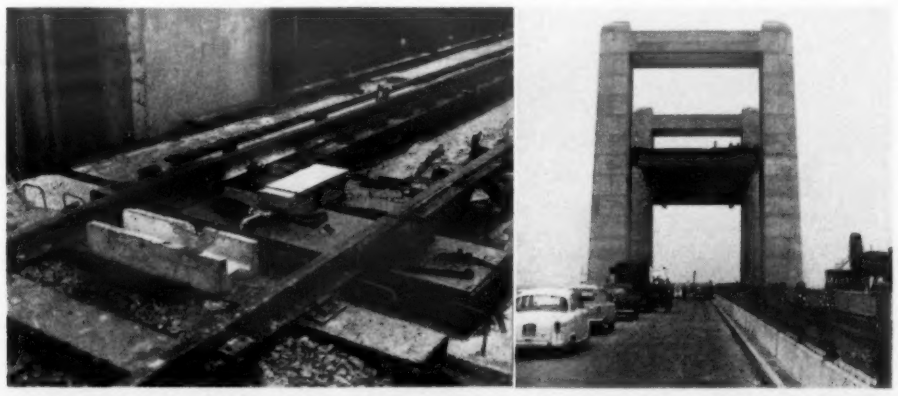
In startling contrast to the long, low, rambling structure of the old bascule bridge alongside, the new Kingsferry Bridge has clean, elegant lines dominated by reinforced concrete towers that rise to 130 ft. above the surrounding marshland and form a landmark that can be seen for many miles. Whereas the old bridge provided a navigation opening of 57 ft., the new bridge provides a 90-ft. clear opening with 95 ft. headroom at high water, and adequate fendering to ensure that it will not be vulnerable to accidents by shipping. The lifting span which rises vertically between the towers weighs 465 tons, and is counterweighted by four 110-ton counterweights. Raising the span to its full height takes 1½ min. and is performed by electric motors. In the event of a breakdown in the electricity supply, standby diesel alternators are capable of raising the bridge in about 15 min.

(To be continued)

Tolls Abolished

Finally, in July, 1929, the bridge was freed of tolls at a cost of £50,000. The county council then entered into an agreement with the Southern Railway Company to maintain the roadway over the bridge and pay half the cost of maintaining the structure and lifting machinery, the structure to remain the property of the railway company, and the council to bear 50 per cent of the cost of any damage sustained by river traffic.

With the ratification of this agreement the question of a new bridge seems to have been shelved for an indefinite period, and it was not until after the last war that the council again considered the matter, and requested Messrs. Mott, Hay and Anderson, consulting engineers, to report on how access to the island might be improved. Their

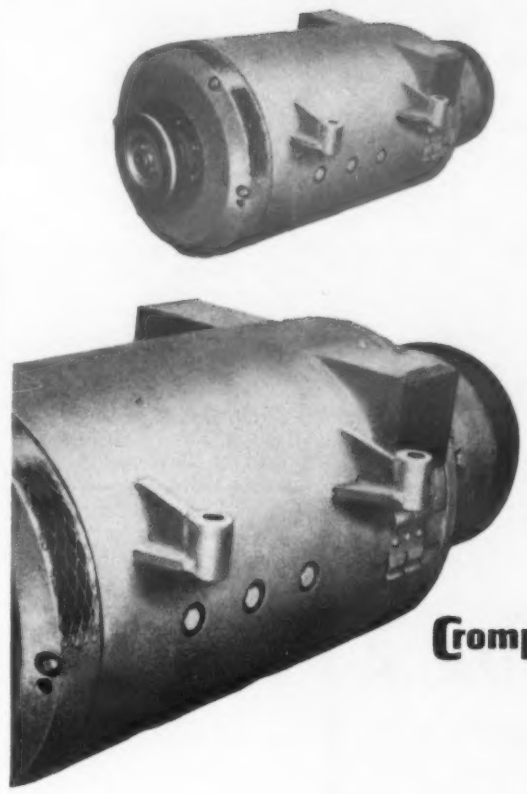


Switchbox for electrical connection of running rails over the gap between the lifting span and approach section; and, right, general view from the roadway with the lifting span partly raised

DESIGNING

AND MAKING

TRACTION EQUIPMENT



You, as an engineer, know that there can be no sharp dividing line between designing and building. A good design incorporates experience gained in making, testing and commissioning similar equipment in the past. And, of course, it is also shaped by the experience of all sorts of people using the earlier designs under a variety of conditions that could not be simulated in any test laboratory.

To a long-established company such as Crompton Parkinson this process of feedback of information to the designer is fundamental.

In traction equipment, where space and weight must be kept down, and yet robustness and accessibility are at a premium, it shows up in the simplicity and elegance with which these conflicting demands are reconciled. As for example, by the neat cylindrical frame of the latest trolleybus motor. In the design of these motors we were able to make direct use of the experience we had gained with earlier trolleybus motors as well as more indirectly from hundreds of other equipments built for main line locomotives, shunters and motor coaches.

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PASSENGER TENDER FOR CORK

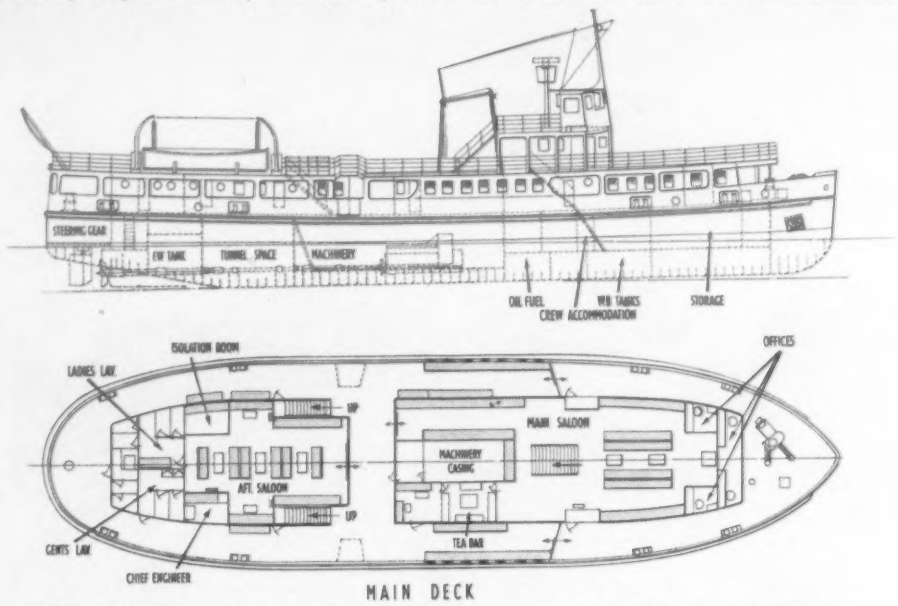
To Carry 200 Persons

THE fleet of the Cork Harbour Commissioners is to be augmented by a new passenger tender which will be built by the Liffey Dockyard, Limited, Dublin, at a cost of £216,000. Designed by the Liverpool naval architects Graham and Woolnough, the vessel will be employed embarking and disembarking passengers, cars and baggage from liners calling at Cobh and will be capable of carrying 200 passengers.

At present the commissioners have in service the ex-Mersey ferryboats *Blarney* and *Killarney*—the former being the 1906-built *Royal Iris* of Zeebrugge fame, while the latter was built in 1922. This new tender will have some of the characteristics of the modern Mersey ferries which were designed by the same firm of naval architects.

The vessel's overall length will be about 151 ft. 9 in. and she has been designed with a permanent droop of 1 ft. by the stern to provide a load draught forward of 6 ft. 9 in. and aft of 7 ft. 9 in. The main propelling machinery is to be situated near amidships and will consist of two single-acting two-stroke directly-reversible diesel engines of the Crossley Brothers HRN5 type. Coupled to twin shafts with outward rotating propellers, they will be capable of developing 860 b.h.p. at 350 r.p.m. The propellers will be four-bladed with diameters of 5 ft. 3 in. to 6 ft. and designed to absorb 410 b.h.p. each when running at 350 r.p.m. with a ship speed of 11 knots. They will be manufactured in nikalium, and the somewhat fine propeller pitch will ensure acceleration of take-off from the liners and landing stage.

Having in mind the vessel's function, special care will be taken to ensure silent running of both main and auxiliary machinery. Specially designed mountings will prevent sound transmission from metallic contact through the ship's structure. Engine air-takes and exhausts are being effectively silenced and all the ship's structural surfaces surrounding the engine-room are being clad with acoustic insulation down to the 4-ft. water line. Resilient chocks will be fitted under the main engines and generating sets to eliminate vibration.



MAIN DECK

General arrangement of the new passenger tender ordered by the Cork Harbour Commissioners

Stand-by Conditions

An interesting feature is that the engines will be maintained at a suitable minimum temperature for stand-by, by connecting a branch from the outlet of the hot water boiler to the main engine fresh water cooling circuit. An unusual feature of the upper deck is that the single hawse pipe is not arranged in the usual fore and aft manner owing to the form of the ship forward. The opening on deck emerges on the starboard side.

Passengers will be accommodated on the main deck, and seating for 125 persons will be provided on triple, double and single upholstered bus-type seats in the main saloon forward, while a smaller saloon aft will accommodate a further 75. Delivery is expected early next year, and navigational aids will include a Decca Type 45 radar.

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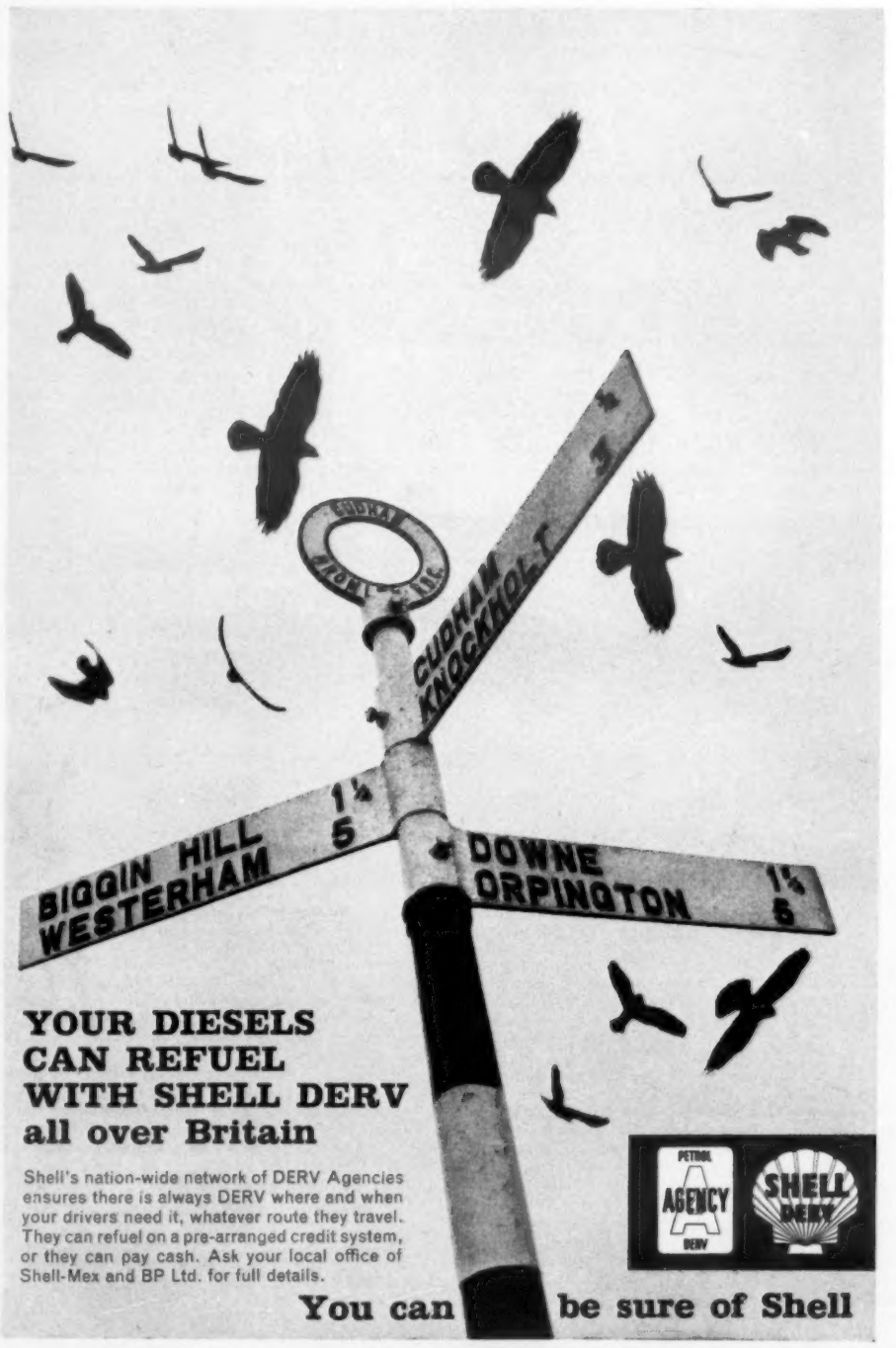

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ROAD PASSENGER TRANSPORT

Operation in a City

*By R. W. ADAMS, M.Sc., M.I.E.E., M.I.Mech.E., M.Inst.T., Chief Engineer, Belfast Corporation Transport Department**

THERE is no lack of information as to what facilities are necessary to provide for any desired volume and speed of traffic flow. What has been lacking has been a sufficiently wide understanding by the public of what the consequences of the unrestricted growth of traffic in the present century were going to be. As a result of this there has been a want of public effort on a sufficient scale to reorganise and rebuild our towns and cities in such a way that their present traffic requirements could be adequately provided for. The matter has been left so late and so much rebuilding has been done in recent years, still in the obsolete urban patterns of the first half of this century, that it seems improbable that the wholesale urban reconstruction necessary to match traffic facilities with traffic needs could be accomplished much before the end of this century. In the meantime the way must be found to keep traffic on the move so that the life of our urban communities does not stagnate and die. In this, public transport has a vital function to perform.

Looking at the matter strictly from his own standpoint the municipal operator is only too well aware of his predicament. He knows how loss of operating speed, delays to the services and missed journeys, all caused by traffic congestion, contribute to increased costs and to loss of passengers many of whom, once they have left off travelling on public service vehicles, do not return. He is well aware of the vast production programme declared by the private car manufacturers. He cannot overlook the possibility that the fate of the defunct American transport undertakings may overtake some on this side of the Atlantic.

Why Public Transport?

The argument here is that there is a need, in the urban communities of the United Kingdom, for a passenger transport service which can only be met by the use of passenger vehicles of large carrying capacity operating to a regular schedule. Not only is there that need but it can be shown that if the traffic congestion problem is to be solved in the immediate future, even temporarily, it must be done by the retention and eventual augmentation of present municipal transport services.

The heart of the matter rests in what is little more than a straightforward proposition in arithmetic. The substance of this proportion is that if in any town or city the use of the available street and road space is correctly apportioned between the different interests which lay claim to it, the traffic congestion problem can be solved.

Freedom of Movement

At the time of the Suez crisis when petrol rationing was imposed there was a sharp reduction in the number of private cars being brought into Belfast. The freedom of movement of traffic in the streets which resulted and the consequent improvement in the public transport services gave rise to the frequent comment by private car owners that they would cease bringing their cars into town if the buses always ran so well to time. The contrary circumstances were equally well demonstrated not only in Belfast but elsewhere when because of strikes public service vehicles were laid off. Great numbers of private cars which were normally left at home were brought out in the endeavour to get to and from work thus creating situations of intense traffic congestion such as had not been seen before.

It is necessary to inquire if an answer can be given in terms of some precision to the question: "What minimum conditions will satisfy the needs of urban passenger transport?" A particular answer to this question is suggested by the simple speed-time-distance relationships of a vehicle in motion on a given length of traffic lane. A bus, started from rest at the beginning of a ¼ mile length of traffic lane which is clear of other vehicles, may without difficulty be driven to the other end and brought to rest again having covered the distance at an average speed of 15 m.p.h. and taken one minute for the journey. If over the same length of traffic lane the average speed of the bus is halved, i.e. reduced to 7½ m.p.h., it will take 2 min. to traverse the ¼ mile distance. Further successive reductions by half, each time, of the average speed of the bus for the same journey to 3¾, 1⅞ and finally ¾ miles per hour result in running times of 4, 8 and 16 minutes.

Loss of Time

The more vehicles there are in any given section of traffic lane the more slowly will the line of vehicles move. The more slowly they move the longer they take to travel a given distance. Hence the loss of time that results where there are too many vehicles too close together in line on the roads. The loss of time caused by traffic congestion which is the crowding of too many vehicles into a traffic lane is the key factor which must be kept in mind. This loss of time is to the municipal operator the real significance of traffic congestion. To reverse the argument, the loss of time is the result of the average speed of traffic being lower than it ought to be.

The problem of traffic congestion has then for the municipal passenger transport operator four principal constituents: (i) Overcrowding of traffic lanes; (ii) Delays caused by route intersections; (iii) Inadequacy of street space to provide sufficient traffic lanes, and (iv) Blocking of traffic lanes by parked vehicles. As has already been said above, the municipal operator's traffic difficulties are at an end when conditions allow his vehicles to maintain a definite level of average speed. What then should that speed be?

Desirable Speed

In municipal transport operation, overall schedule speeds of buses may be reckoned to be of the order of 11 to 12 m.p.h. From what has been observed of day to day working at peak hours within the large one-way traffic system which has been described here it can be said that the operating conditions, having regard to the problem of pedestrian crossings, are satisfactory. It is suggested therefore that for operation of public service vehicles in traffic congested areas of urban communities a target figure of 9½ m.p.h. average speed should be aimed at. This figure would exclude any time expended in setting down and taking up passengers.

It must now be recognised that the near chaotic conditions in which road transport has to operate is a new form of crisis in modern society. The mass ownership of private cars is just one facet of the technological precocity of man which by having outstripped his economic and social development threatens to confound him. The threat is of the extinction of urban life by the complete choking of the traffic routes unless the most rigorous action is taken now. In the first onset, that action has to be directed against the immediate and clearly to be seen cause of congestion, that is to say the excessive numbers of private cars being used for urban commuting.

Ban on Parking

Inevitably the form the action must take is complete prohibition of parking of vehicles in all streets during those periods of the day when the streets are required as traffic lanes. With this it will be necessary to combine strict regulation of the extent to which off street or side street parking is to be permitted and provided for in traffic congested areas.

The public transport operator has the responsibility of providing transport for the overwhelming majority of urban commuters. He is unable, even if so inclined, to afford any regrets for the private car owner who may no longer be able to use his car for travelling all the way to and from work. But with unrestricted freedom of running conditions for buses in what were previously congested areas the operator must offer the motorist a first-class service to take the place of his private car for commuting. Concurrently with the thinning out of the traffic streams at peak hours by restricting parking there is the necessity, on the short term view, to eliminate route intersections by instituting one-way traffic systems where possible.

The assessment of route traffic capacities, the planning of the corresponding parking systems, also the investigation of requirements for street improvements and layout and for traffic routeing are all traffic engineering functions. The criterion of performance against which all these factors must be assessed is the 9½ m.p.h. average speed of traffic flow required by the public transport operator through all streets which would otherwise be subject to traffic congestion.

Staggering of Hours

There is one more consideration which must not be overlooked. Of all the possible ways of effecting a reduction in congestion of traffic there is none that for simplicity, effectiveness and minimisation of expenditure approaches staggering of working hours. In the minds of public transport operators the merits of staggered working hours can scarcely be overrated. In regard to the possibility of increased operating costs at peak hours it is suggested that if all users of public transport continue insisting on coming to work and going home at the same time it may be necessary to relate fares at peak hours to the cost of use of traffic lanes in central areas at these times. For if the cost of street space at peak hours in those areas is too high to permit its use by private car owners for parking it is also at those hours high (though not *so* high) for vehicles in motion whether they are publicly or privately owned.

Of 51 municipalities not more than 20 have established either special committees or sub-committees of the council to deal specifically with traffic questions. In general these incorporate members of transport committees and also have the transport general manager in attendance while a few include representatives of outside interests, for instance, motoring associations, chambers of commerce and road safety associations. Of these 20 local authorities eight represent the largest cities, four are those with undertakings having medium-sized fleets and the rest are those with the smaller undertakings. Thirty-five of the local authorities in question have either a committee or sub-committee dealing wholly with town planning. But it is curious that, as replies made clear, transport committees had not direct representation on such committees or sub-committees in more than seven instances. In a few cases transport committee members were, by coincidence, also concerned with town planning. In the other authorities town planning interests come under the care of the borough engineers and surveyors and thus their own committee. Altogether 39 municipalities acknowledged having a planning officer but in some of these the planning duties were included in the responsibilities of the borough engineer.

In view of the importance that traffic problems have assumed in recent years it is remarkable that only two of 51 municipalities employ an officer designated as traffic engineer. These were Birmingham and Portsmouth. In the other municipalities traffic engineering functions are undertaken variously by borough engineers and planning officers, generally in consultation with other chief officers, including the police.

Adaptability

The condition for survival is adaptation to circumstances and the municipal operator must therefore use the techniques of the highly competitive commercial world by studying its methods and profiting by its experience. There is first of all a field for stage carriage operation lying in between the heavy scale operations of large capacity buses at comparatively low fares and the highly individual high cost services rendered by taxis. Something of this kind was envisaged last year by Mr. Norman Morton, general manager of Sunderland Corporation Transport, when he proposed to use 14-seat buses on a five-minute ring service at a 2d. flat fare for any distance. Vehicles of similar type and low cost and of a size appropriate to varying circumstances would lend themselves admirably to one-man operation. They might carry up to 30 passengers.

The potentialities within this field are bound to grow in importance as regulation and restriction of car parking are intensified and traffic begins to flow more freely. The opportunity for public transport with the small type of one-man bus will lie in catering for internal traffic, where such journeys were previously made in private cars, as distinct from traffic into, and out of, central urban areas; for services to and from off-street car parking centres and for giving services economically to otherwise unremunerative routes. The other activity in which much could be done to the advan-

(*Continued on page* 14)

*Abstract of a paper to the Scottish Road Passenger Transport Association at Turnberry on April 20.

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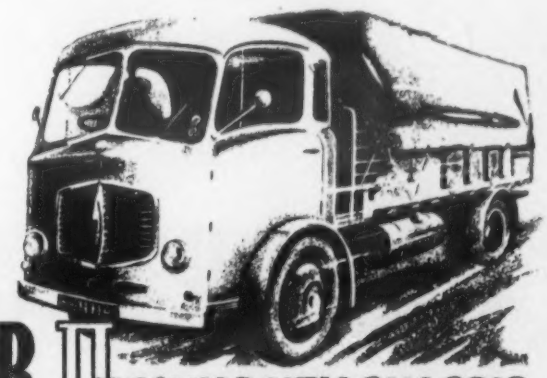

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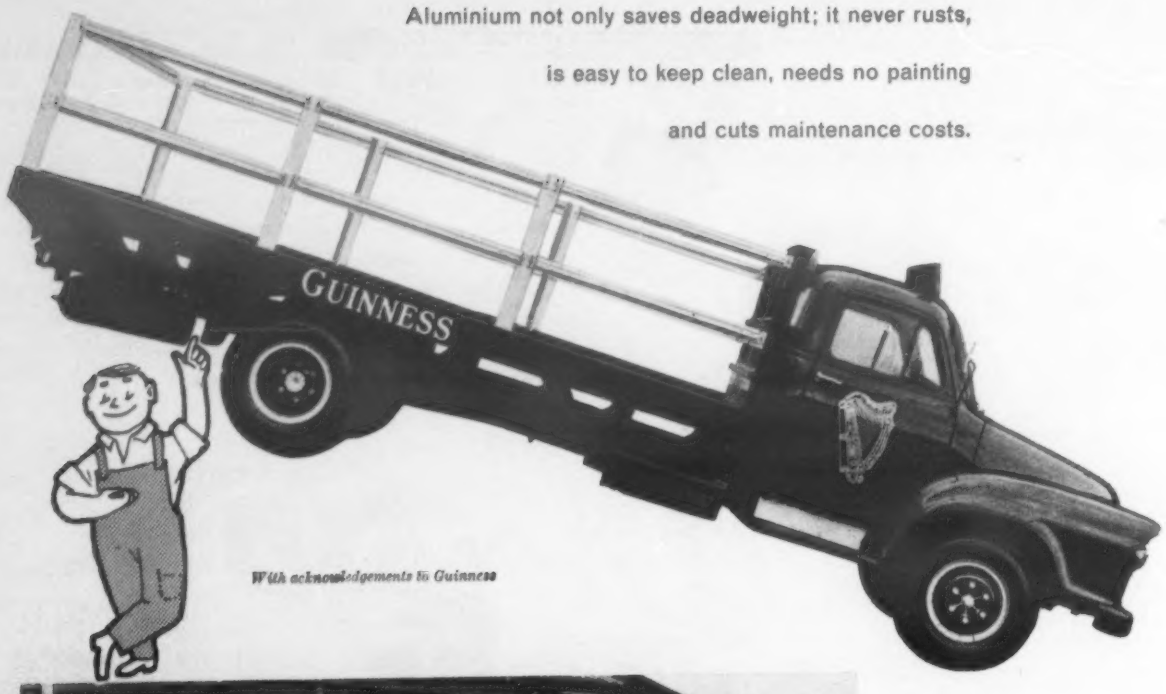

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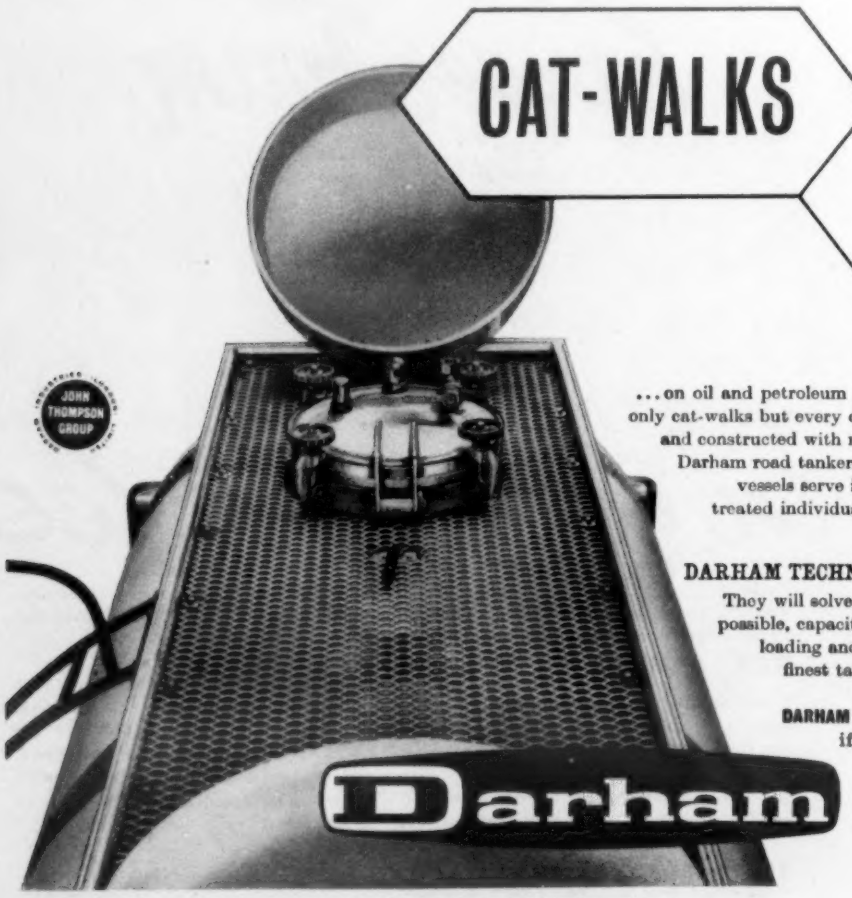

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IMPORTANT CONTRACTS

Plastics Vans for G.P.O.

DELIVERIES have started to the General Post Office of vans with plastics bodywork, of which 50 have been ordered for testing in various towns throughout the country. The vehicles are based on Morris-Commercial 30-cwt chassis, with standard sliding-door front ends, on which 360 cu. ft. resin-glass van bodies are being built by Longwell Green Coachworks, Limited. Post Office red colour is impregnated in the panelling, except the roof, which is translucent.

Propane for the Admiralty

An Admiralty contract for supplying its requirements of propane has been obtained by British Oxygen Gases, Limited. Under the contract, which is operative in the first instance for 12 months, 24-lb., 50-lb. and 100-lb. capacity cylinders of propane will be supplied to H.M. Dockyards at Chatham, Devonport, Portsmouth and Rosyth and the R.N. Torpedo Factory at Alexandria, Dunbarton.

Ferranti Computer for Air Traffic Control

Ferranti, Limited, announces that its Apollo computer, the first of its type ever to be used for air traffic control experiments in this country, will go into operation at the Scottish air traffic control centre at Redbrae, Prestwick, early in the spring of next year. Initiated by the Ministry of Aviation, the development represents a significant advance in the application of data-processing to the control of air traffic.

A.E.C. Dumptruk in Sweden

An important new market has been opened up for the heavy-duty off-road Dumptruk manufactured by A.E.C., Limited. The firm of Ingeniorsfirman Teredo, Vastra Tradgardgatan 19a, Stockholm C, has been appointed sole distributor for this type of A.E.C. in Sweden. Ab Nykopings Automobilfabrik continues to act as Swedish dealer for conventional A.E.C. commercial vehicle chassis. The Teredo company has placed a substantial stock order for its first batch of Dumptruks.

Ford Tractor Records

Tractors are coming off Ford Motor Company's production line at Dagenham, largest United Kingdom producer of tractors, at the rate of 356 a day, the highest daily output ever achieved. Production during the first quarter of 1960 compared with the first quarter of 1959 shows an increase of 20.4 per cent, or 3,382 tractors. Sales were also up; despite the highly developed state of mechanisation achieved at home, the Ford company reports a sales increase in the home market of 2.6 per cent for the quarter, while export sales were up by 35.4 per cent, or 3,647 tractors.

★

SHIPPING AND SHIPBUILDING

Navigation Aids in Space

ORBITING the earth since Wednesday last week is the first navigational aid satellite. Launched from Cape Canaveral, Florida, it is the forerunner of a satellite system which will enable ships and aircraft to determine their position even in the worst weather. It will also have a use in the launching of submarine or airborne missiles. Four or six transit navigation satellites are planned. Tracking stations will calculate the orbit of each for each 24-hour period; this data will be fed to the satellite which will broadcast it continuously. The system is intended to be fully operational by 1962.

Western Isles Ferries

DEVELOPMENT of the Scottish Western Isles is likely to produce more short-sea crossings of cars and goods vehicles and less cargo traffic, says David MacBrayne, Limited. In view of this it intends in the long term to replace conventional ships by vehicle ferries on these services. They might operate between Mallaig and Armadale, North Skye and North Uist and Harris, and between Oban, Mull and Morven. On Easter Monday a converted minesweeper, *Loch Arkaig*, commenced duty on the Raasay—Skye service.

Strong Hint from P. and O. Chairman

WHERE we had gone wrong so far in international discussion of shipping problems was that they had been discussed with other governments in isolation from any other trade or commerce, said Sir Donald Anderson, P. and O. chairman, on Teeside. "Sweet reason alone has been our argument, and it has not been good enough. We must find the traditional carrot, with a stick in reserve, and we find them only in the purchasing power of the U.K. as a whole. Shipping as such can offer no carrot, and so to argue the interests of U.K. shipping in isolation from U.K. trade as a whole is bound to fail.

"It follows, I think, that the Ministry of Transport is not the right department of government to handle these affairs, because it has no control over the purchasing power of this country. It has no knowledge of our overseas trade relations as a whole. This is not its responsibility. The Board of Trade has all these strings in its hand, and I think it is to the Board of Trade that we must now look. Members of Parliament should consider what department of government can most effectively use our bargaining power and to see that this department is given the job of protecting our interest."

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TRANSPORT IN A CITY

(*Continued from page* 13)

tage of municipal passenger transport, is in the combined field of advertising and market research.

From the information supplied by 51 municipal undertakings it is learned that 35 do some advertising and 12 restrict it to the regular issue of timetables. Only two, both famous south coast resorts, stress the advertising efforts they make. Fourteen undertakings state that they do not do any advertising. It is no secret that advertising on television brings profits with the prolificity of a bank note printing machine. Advertising is the quintessence of the ideology inspiring the vast business economy of the United States. The municipal transport industry might then take as its motto "Advertising is advantageous for Us" and like the well known institution from whose advertising this derives come to have as little regrets about it.

SOCIAL AND PERSONAL

U.I.C. Meeting

AT its last session the board of management of the International Railway Union (U.I.C.) discussed a preliminary report drawn up by a working party on modernising the international conveyance of goods. It approved the report in principle and, in particular, the suggestion for an international network of through goods trains. It requested the working party to submit a new report at the next session. In a comprehensive report the secretary-general (Monsieur Tuja) summarised for the board the proposals made by various officials, including the chairman of the committees, offices and centres, for additional measures which seemed advisable in connection with the U.I.C. structure decided in 1958. The board also took a number of decisions of principle mainly connected with the heads of departments taking part in the work of the U.I.C. and the functioning of the Office for Research and Experiments (O.R.E.). It also discussed such matters as the extent to which the railway equipment manufacturers should be consulted in working out U.I.C. specifications, and the sale of manufacturing rights for standard diesel locomotive. The board also agreed that the Mali Federation Railways (formerly the Dakar to Niger Railway) should be admitted to membership of the U.I.C. and the O.R.E.

* * *

Mr. S. Ridgway, A.M.I.Mech.E., M.I.Loco.E., who has been made locomotive works manager, Swindon, Western Region, B.R., began his railway career in 1931 as an engineering apprentice at Crewe locomotive works, where he subsequently served as a draughtsman until 1939. In the latter year, Mr. Ridgway took employment with the Indian Railways. He served in various posts on the Bengal and Assam Railways, including assistant works manager, Saidpur, Bengal and district mechanical engineer, Badarpur, Assam. During the latter part of his service abroad, which ended in 1945, the railway was under military control and Mr. Ridgway held the rank of Major I.E. He returned to England in November, 1945, and joined Beyer, Peacock and Co., Limited, as process engineer, later becoming assistant works manager. From 1950 until 1958 he served with W. G. Bagnall and Co., Limited, Stafford, as works manager and, while with this firm, visited America to study diesel locomotive construction. Mr. Ridgway rejoined British Railways in February, 1958, as senior production assistant to the chief mechanical and electrical engineer, Western Region, Swindon, which post he now vacates upon taking up his new appointment.

Mr. S. Ridgway

* * *

Mr. S. Kenneth Davies, C.B.E., M.Inst.T., who has been a member of the board of British European Airways since 1951, has been reappointed to serve with the Corporation in the same capacity for a further two years.

* * *

Mr. W. Newland Williams, who has been with Stream-Line Filters, Limited, since the formation of the company, has now been appointed sales manager for Dunedin Engineering Co., Limited, which manufactures a range of instruments which are being used for testing and tuning of diesel engine fuel injection systems.

Mr. David C. Haney, who has been director of sales for the International Harvester Co. of Great Britain, Limited, since 1954, is now appointed assistant managing director. Mr. H. D. Frymire, since September, 1957, manager of domestic sales, now becomes director of sales.

* * *

Elected chairman recently of the London and South Eastern region committee of the British Association of Industrial Editors, Mr. F. Lyon, editor of *The Road Way*, journal of the Road Haulage Association, is to represent the R.H.A. at the I.R.U. congress at Dubrovnik, in Yugoslavia, next month. With him will be Mr. J. A. Murly, chairman of the R.H.A. international transport group.

* * *

The Fifth International Study Week in Traffic Engineering and the 1960 International Road Safety Congress will take place in the Palais de la Méditerranée, Nice, France, from September 26 to October 5. The study week has been planned by the joint committee of the World Touring and Automobile Organisation (O.T.A.), Permanent International Association of Road Congresses (P.I.A.R.C.) and the International Road Federation (I.R.F.). Responsible for the planning of the Road Safety Congress are O.T.A. in co-operation with the International Federation of Senior Police Officers (I.F.S.P.O.) and the Prévention Routière Internationale (P.R.I.).

* * *

As already announced, Mr. J. Don has been appointed road motor engineer to the chief mechanical and electrical engineer, North Eastern Region, B.R. He joined the Great Eastern Railway as an apprentice at Stratford locomotive works in 1915. On completion of his apprenticeship in 1928, he was transferred to the road motor engineers department, and subsequently held positions under the district road motor engineers at Darlington, Nottingham, Norwich, Gateshead and Manchester. In 1949 he was appointed district road motor engineer, Manningham (Bradford), the post he has vacated to take up his new appointment.

Mr. J. Don

* * *

We record with regret the death of Mr. W. F. Spurling, who was chairman and managing director of Spurling Motor Bodies, Limited. He was 80.

* * *

Mr. M. C. Purbrick, B.Sc.(Eng.)(Lon.), A.M.I.C.E., has been appointed district engineer, Derby North, London Midland Region, B.R.

* * *

Ruston and Hornsby, Limited, announces the appointment of Mr. C. J. Hind as engineering director. Mr. Hind received his early engineering training with Ruston, devoting the latter part of his training to high-speed engine design. In 1940 he transferred to the associate company, Davey, Paxman and Co., Limited, at Colchester, to assist in design and development. After the war he became chief experimental engineer to Dennis Brothers, Limited, in charge of diesel and petrol engine development. In 1949 he returned to Davey, Paxman as chief designer and was responsible for the Paxman YL range of diesel engines which are now widely used for land and marine applications. In 1953 he became chief diesel engineer. In 1957 he returned to Ruston and Hornsby as chief engineer (engines).

Photo] [La Vie du Rail

At the 53rd session of the board of management of the International Railway Union (U.I.C.) in Paris:

Left to right at top table: Messrs. P. A. Rousseau, chief executive officer of the U.I.C.; J. Tuja, secretary-general; Professor H. M. Oeftering, chairman of U.I.C.; John Ratter, president-elect and vice-chairman; and G. M. Leach, U.I.C. passenger committee chairman

As already announced, I.C.H.C.A. will hold an international technical conference in Genoa on September 16-18. The subjects to be discussed at this conference are:

"The Use of Mechanical Handling Equipment on Board Ship and on the Quay." This paper will take into account the results so far achieved of a study initiated some two years ago with regard to the use of specific types of equipment, particularly on board ship.

"Systems and Equipments for the Loading, Maritime Transport and Unloading of Motor Cars" will give a comprehensive review of the position of this traffic today and plans for the immediate and distant future. In conjunction with this paper will be a demonstration of the actual loading methods in use in the port of Genoa.

* * *

The Minister of Transport has appointed Major-General P. G. Whitefoord, O.B.E., M.C., to be a member of the Central Transport Consultative Committee for Great Britain until December 31, 1960, to represent local authorities. He replaces Major J. R. H. Harley, D.L., J.P., who has resigned from the committee owing to ill-health. Mr. A. Fielding, A.C.I.S., is to be a member of the Transport Users' Consultative Committee for the East Midland Area until May 31, 1962, as one of the representatives of commerce to replace Mr. S. French who has resigned. Mr. Fielding is managing secretary of the Coalville Co-operative Society.

Mr. Reginald Maudling, the President of the Board of Trade is to open the Mechanical Handling Exhibition at noon on May 3 at Earls Court.

* * *

Mr. W. Sutton, managing director of Willowbrook, Limited, retired on March 31 after 40 years' service. Mr. G. R. White, managing director of Duple Motor Bodies, Limited, will henceforth also be managing director of Willowbrook.

* * *

We regret to record the death of Mr. S. A. Fitch, O.B.E., M.Inst.T., assistant general manager (traffic), Southern Region, B.R., at the age of 63. He had held this position since October, 1958. Mr. Fitch commenced his railway career with the S. E. and C. R. in 1911.

* * *

Mr. W. H. Holmes has been made commercial assistant to the portmaster, Grimsby and Immingham Docks, responsible for trade development of the port, which has recently undergone major schemes of rehabilitation and modernisation, including new fast-working electric cranes (most of which are equipped for grabbing) and coal shipping appliances, flush quays suitable for both road and rail traffic, improved transit sheds and storage accommodation.

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